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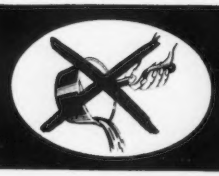

DON'T BE A FAT WASTER!

SAVE WITH

Human Utilization of Thiamin and Riboflavin in Yeast[1]

HELEN T. PARSONS, Ph.D., and JEAN COLLORD, M.S.[2]
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DOUBT concerning the efficacy of fresh raw yeast as a source of the vitamin B complex was suggested by the observation of Walker and Nelson (2) that the apparent vitamin B_1 content of fresh yeast as measured by rat growth doubled on drying. It seemed probable to them that the physical changes which take place in the yeast cell as a result of drying are such as to render the vitamin content more available for absorption, even in cells not actually killed. That the fresh yeast cell resists digestion in the human tract was indicated by Montgomery, Boor, Arnold, and Bergheim (3) who found that over one-half of the viable yeast cells, ingested by the subjects in their experiment, passed through the stomach without being killed; and also by unpublished observations in this laboratory[3] that viable yeast cells appeared in the feces within three days after the beginning of the consumption of fresh yeast cakes. Experiments by Wojta (4) in this laboratory showed by fluorometric determinations that a much greater output of thiamin occurred in the urine after the ingestion of boiled than of fresh yeast, the content of the urine from the latter being too low for accurate determination in the samples available.

EXPERIMENTAL

Subjects.[4] In one experiment, the uniform weighed diet was consumed for a 22-day period by a squad of 6 young women (Group A) comprising 2 graduate students and 4 seniors of the Department of Home Economics, University of Wisconsin; Group B included 4 young women from the same department: 1 graduate student and 3 seniors.

Diet. The basal diet was selected with regard to convenience and the preferences of the members of the squad, as well as to its fairly limited thiamin content, and was as follows for Group A:

Food	*Amount gm.*
Breakfast	
Grapefruit juice	200
White bread	43
Butter	12
Grape jelly	20
Black coffee	—
Lunch	
Cheese sandwiches	
Whole wheat bread	60
Butter	15
Cheese	55
Lettuce	60
Salad dressing	12
Apple	150
Milk	240
Dinner	
Tomato juice	200
Lean beef (hamburger)	100
Potato (baked)	100
Butter	15
White bread	23
Cabbage	30
Ice cream	100
Milk	240

The basal diet of Group B differed from this only in slight details such as the inclusion of squash and the substitution of rib roast for hamburger, and white bread for one serving of whole wheat bread.

The noon and evening meals were prepared and eaten in the nutrition laboratory; the food for breakfast was weighed in the laboratory and eaten at home.

The basal diet of Group B was supplemented for the entire 13 to 15-day period with 1 mg. thiamin daily; in addition, for 1 subject, from the 4th to the 7th day inclusive, with 3 yeast cakes, boiled; and from the 10th to the 13th day, with 3 fresh yeast cakes daily; for the other 3 subjects this same

[1] Presented before the American Dietetic Association, Detroit, October 20, 1942; and previously, in part, before the Federation of American Societies for Experimental Biology, Boston, April 1942 (1).

[2] Miss Collord is Wisconsin Alumni Research Foundation Research Assistant, 1941–42. The study was aided also by the National Youth Administration.

[3] From a thesis by Fritzi Lyons, a senior in the Department of Home Economics, University of Wisconsin, 1941.

[4] Thanks are due to the following students for their collaboration in preparing and eating the experimental diet and making collections of excreta: M. Balch, J. Church, J. Gardner, M. L. Johnson, J. A. Kiplinger, J. Larson, F. Rich, C. Seelman, and D. Weber.

schedule was followed except that the yeast periods were only 3 days in length.

For Group A, it had been planned that the 1 mg. thiamin would be taken throughout the experiment as a part of the basal diet, but through a misunderstanding it was consumed during the basal periods only. Hence the sequence of periods was as follows: for 3 days, 1 mg. thiamin; 4 days, 4 boiled yeast cakes; 2 days, 1 mg. thiamin; 4 days, 4 fresh yeast cakes; 2 days, 1 mg. thiamin; 4 days, 4 autolyzed yeast cakes; 1 day, 1 mg. thiamin; 1 day, 1 mg. thiamin and 1 mg. riboflavin; 1 day, 1 mg. thiamin and 2 mg. riboflavin. For marking feces, charcoal and carmine were consumed on alternate days by the 4 subjects of the shorter study and by 3 subjects of Group A. One of the latter subjects proved to have such irregular fecal eliminations that these were not used for the study. One yeast cake was consumed at each meal, or 2 cakes at luncheon when 4 were eaten daily. These were administered either fresh, suspended in a cold liquid such as grapefruit juice or water; or boiled for 2 minutes in water; or autolyzed by liquefaction for 2 hours in 2 ml. ethyl acetate per cake followed by boiling for 1 hour to dispel the acetate.

The yeast used in the study of Wojta (4) was an enriched type kindly provided by a yeast company. That used in the present experiments was from another manufacturer and was purchased in the open market.

Two different commercial preparations of thiamin chloride were used in these studies. A product obtained directly from the manufacturer was used both by Wojta and by Group B; a product purchased on the open market was used by Group A.

Methods. Thiamin was determined[5] by the rat assay method of Schlutz and Knott (5, 6) with the use of autoclaved hog liver in the basal ration. The urine, collected with 3 ml. glacial acetic acid and 1 ml. chloroform and preserved with a layer of toluol, was concentrated for feeding; the feces were dried from an acid-alcohol mixture as advised by these authors.

For Group B, composite samples for testing were prepared from the fecal collections of the 4 subjects for each of the 3 to 4-day periods, using all of the daily collections. For Group A, similar composites were made of the urines of the 6 subjects from the last day only of each period, and of the fecal collections of 2 subjects for the same days. Favorable levels for testing the samples were found in a preliminary range of doses after which duplicates were run (Table 1).

Riboflavin was determined by the method of Snell and Strong (7). That part of the study which involved riboflavin determinations was carried out in the laboratory of F. M. Strong under his supervision.

Studies parallel to those made with thiamin and riboflavin have also been made on biotin, but they, together with further biotin metabolism studies, will be made the subject of a separate presentation.

[5] In the thiamin assays the work of the following senior Home Economics students is gratefully acknowledged: F. Rich, J. Larson, and C. Seelman.

RESULTS AND DISCUSSION

Utilization of Thiamin. The data in Table 2 and Figure 1 lead to the conclusion that 2 or 3 times as much thiamin is assimilated from a given quantity of yeast if the yeast has been boiled rather than consumed as fresh yeast. In the boiled yeast period, the amount which was excreted in the urine was more than double that in the fresh yeast period. The urinary fraction, representing an excess portion of thiamin not metabolized by the body, is commonly accepted as a rough measure either of the comparative amounts of the vitamin being introduced into the body or of the relative need of body tissues to restock their stores of the vitamin, depending on the way in which the conditions of the controlled experiment are arranged. In the present instance, the sequence of periods chosen precluded the implication that a comparatively low urinary output of thiamin

TABLE 1

Summary of biological assays for thiamin in Group A

MATERIAL ASSAYED	10-DAY ASSAYS	DOSES		AVERAGE DAILY GAINS RATS
		Weight	Part of day's sample	
	no.		*per cent*	*gm.*
Reference standard thiamin	10	3.6 μg.	—	2.23
	21	2.7 μg.	—	1.54
Basal diet of squad	8	1.72 gm.	0.49	2.40
Yeast				
(a) boiled (dry wt.)	9	21 mg.	0.04	1.80
(b) dried (room temp.)	8	21 mg.	—	1.15
Urine, first basal period	4		0.71	1.49
(average, 6 subjects)	3		1.07	2.20
Urine boiled yeast period	4		0.37	1.30
(average, 6 subjects)	3		0.50	1.60
	3		0.79	2.30
Urine, raw yeast period	9		0.71	1.02
(average, 6 subjects)	6		1.05	1.28
Feces, basal period (average, 2 subjects)	4		0.42	2.10
Feces, boiled yeast period (average, 2 subjects)	4		0.42	1.45
Feces, raw yeast period (average, 2 subjects)	7		0.16	1.80

TABLE 2

Intake, urinary excretion and fecal elimination of thiamin by Group A on a basal diet with additions of thiamin, fresh yeast or boiled yeast

SOURCE OF THIAMIN	THIAMIN PERIODS WITH					
	1 mg. thiamin		4 cakes fresh yeast		4 cakes yeast boiled	
	Amount	Part of intake	Amount	Part of intake	Amount	Part of intake
	μg.	*per cent*	*μg.*	*per cent*	*μg.*	*per cent*
Intake						
Basal diet	775	43	775	26	775	26
Thiamin	1000	57	—	—	—	—
Yeast	—	—	2200	74	2200	74
Total intake	1775	100	2975	100	2975	100
Output						
Urine (average, 6 subjects)	350	19.7	270	9.1	575	19.3
Feces (average, 2 subjects)	830	46.7	1950	65.5	650	21.9
Total output, average	1180	66.4	2220	74.6	1225	41.2
Unaccounted for, average	595	33.6	755	25.4	1750	58.8

on the fresh yeast intake could be attributable to a retention of the vitamin by depleted tissues not sufficiently restocked during the short initial basal period. If this had been the situation, the boiled yeast period would have been the one to show more strongly a retention of thiamin by a low urinary output rather than the fresh yeast period which followed it. Hence the difference in urinary output of thiamin between the boiled and fresh yeast periods may be accepted as one indication of the difference in the absorption of thiamin in the 2 periods.

The above evidence was strikingly confirmed by the results on fecal elimination. In the 2 subjects of Group A for whom fecal determinations were made for the last day of each feeding period, more than 3 times as much thiamin was eliminated by this route during the fresh yeast period (when, presumably, the viable yeast cells offered resistance to digestion) as in the boiled yeast period (when, presumably, the properties of the cell had been changed with a consequent escape of the yeast cell contents). Similarly, in the shorter study (Table 3) the elimination of thiamin in the feces of the 4 subjects was 2 to 3 times as great on fresh yeast as on cooked. Here 3 yeast cakes were eaten instead of 4 and the samples tested represented collections for the entire 3 to 4-day periods instead of the last day of each of the 2 periods. That the 2 fecal studies representing such different portions of the periods are so similar is an argument against the supposition that the fecal

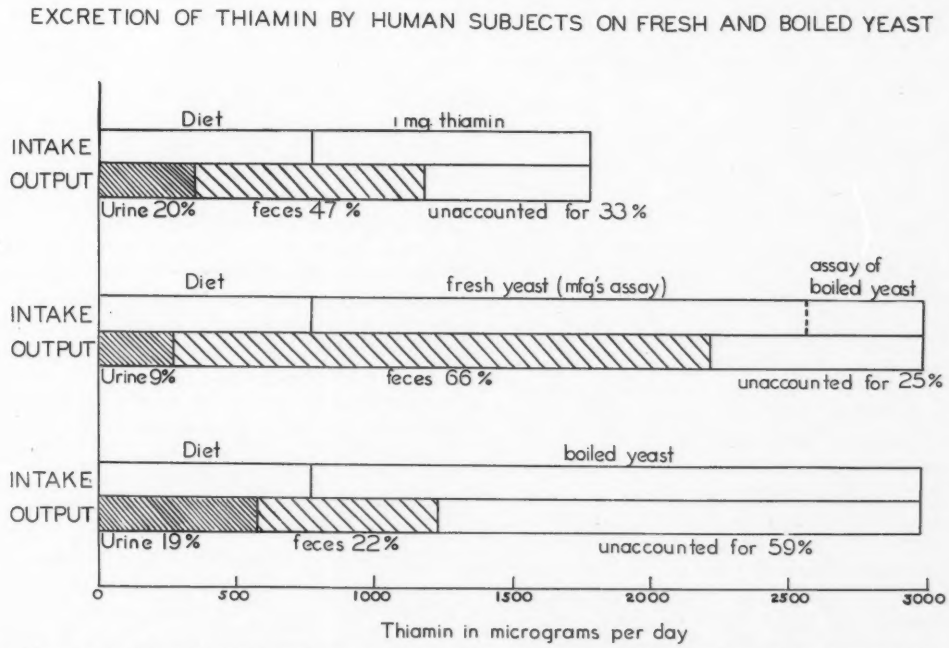

Fig. 1. (Group A.) The individual total intake of thiamin as basal diet, added thiamin pellet, fresh yeast or boiled yeast, is plotted against the average elimination in urine and feces and the remainder unaccounted for, assayed as composites for the last day of each period (see table 2). The ratios of urine thiamin to fecal to unaccounted for, 1:7:3 and 1:1:3 for the fresh yeast and boiled yeast period, respectively, suggested that the thiamin of fresh yeast was relatively unavailable to the subjects.

output of thiamin might come largely from a synthesis in the digestive tract. It seems more reasonable to postulate that the large fecal elimination of thiamin in the fresh yeast period actually represents a relative failure of absorption of the contents of those yeast cells which have resisted digestion.

If one may compare, in Table 2, the average urinary output of 6 subjects with the average fecal output of only 2 of these subjects, it is seen that during the boiled yeast period the relationship of urinary to fecal to unaccounted-for thiamin was roughly 1:1:3. That this ratio became roughly 1:7:3 in the fresh yeast period emphasizes strikingly the probability that much of the fresh yeast escaped complete digestion.

TABLE 3

Intake and fecal elimination of thiamin by Group B on a basal diet with additions of fresh yeast or boiled yeast

SOURCE OF THIAMIN	THIAMIN (DAILY) IN 3 OR 4-DAY PERIODS WITH					
	3 cakes fresh yeast			3 cakes yeast boiled		
	Amount	Part of intake		Amount	Part of intake	
		Total	Disregarding added thiamin		Total	Disregarding added thiamin
	μg.	*per cent*	*per cent*	*μg.*	*per cent*	*per cent*
Intake						
Basal diet	680	20	29	680	20	29
Thiamin	1000	30	—	1000	30	—
Yeast	1650	50	71	1650	50	71
Total intake	3330			3330		
Without thiamin	2330			2330		
Output						
Feces (average, 4 subjects)	1020	30	44	480	14	24
Unaccounted for (including urine)	2310			2850		

It will be noted that the quantity of thiamin recovered from the feces was somewhat greater during the period of basal diet plus thiamin than during the period of basal diet plus yeast. This was not true in the study with Group B referred to above. The preparations of thiamin used in the two studies were quite different and further investigation will be necessary to determine if thiamin from these two sources is equally well utilized. It has been commented on by Leong (8) that the plateau of urinary excretion and sharp rise in fecal elimination of thiamin observed by him at a certain point in the increasing dosage of this vitamin with rats may have been related to the failure of thiamin to be released from the adsorbate fed, beyond certain levels. No information was given by Schultz, Light, and Frey (9) on the source of the thiamin which was administered to human subjects at 5 and 10 mg. levels; the subjects, in excretion equilibrium on 5 mg., showed no increase in urinary excretion when put on the higher level but the high fecal content of thiamin, approximately 7 mg., probably accounted for this lack of increase in the urine.

Two different commercial preparations of thiamin chloride were used in these studies. A product obtained directly from the manufacturer was used in the 16-day study, and a product purchased on the open market was used in the 22-day study.

Some feeding experiments with rats tended to confirm the hypothesis that injury to the semipermeable membrane of the yeast cell increases the digestibility of the yeast. A brand of fresh yeast which after boiling yielded a value of 550 μg. thiamin per cake by rat assay in this laboratory was found to be very difficult to assay when fed as fresh yeast. Whereas 70 mg. (moist weight) of the yeast after boiling was sufficient for good growth, doses of the fresh yeast up to 160 mg. rarely produced any growth at all and it was only when doses of 200 to 300 mg. of this or of another brand of fresh yeast were reached that good growth resulted. Even here the results were unusually irregular. This cannot be attributed to irregularity in intake, for the yeast was fed as a suspension directly to the rats from the end of a pipette. It would be credible that animals differ in their capacity to digest fresh yeast cells. From this rather unsatisfactory assay a biological value of about 150 μg. thiamin per cake might be assigned to the yeast when fresh. On the other hand, drying the yeast at room temperature changed the assay value to about 390 μg. per cake (*see* Table 1). Dried yeast was not fed to the human subjects but the ratio of the rat assay for fresh yeast to that of boiled is in good agreement with the results in the human experiments here reported. In these latter the interpretation of the results might be expected to be somewhat complicated by the fact that the yeast was not the only source of thiamin, the basal diet contributing to the intake also, and that the results were measured not by evidence of the use of the thiamin by the human subjects but by its lack of absorption from the feces and by the excretion in the urine of an unused excess. In spite of this, the evidence seems to point to a much increased human utilization of thiamin from yeast which has been boiled prior to its consumption.

Utilization of Riboflavin. The 4 cakes of yeast used by Group A furnished a relatively smaller addition of riboflavin, *i.e.* 780 μg. or 48 per cent of the content of the basal diet, than was true of thiamin, *i.e.* 2200 μg. or 286 per cent of the basal. Hence, the less striking differences in output of flavin than of thiamin between the two yeast periods were not

unexpected; however, Figures 2 and 3 show that there is the same general tendency for a greater excretion during the period of cooked yeast consumption than that of fresh yeast. Individual differences between subjects are quite large and tend to mask the group differences. These subject differences also extended to the excretion of test doses of riboflavin itself. Day to day variations for any one subject were not so large as those between subjects, as can be seen from Figure 2b where the individual records of 2 subjects of Group A are presented. The striking contrast is, instead, furnished by these two individuals themselves. The urinary output of riboflavin during the first basal period was 4 times as great for subject 1 as for subject 2 and a consistent difference between the two prevailed during the 22 days of the experiment. It is worthy of comment that subject 2 had not been accustomed to a frequent use of foods notably rich in riboflavin and furthermore, achlorhydria had been diagnosed sometime previously, a condition which has been reported (10) to be often associated with a low utilization of riboflavin, although this relationship is thought not to be true in pernicious anemia (11). During the experiment the eyes of subject 2 were examined with a slit lamp by an oculist[6] and some ocular vascular proliferation was noted to a degree usually accepted as typical of a borderline riboflavin deficiency. Hence, one of the chief reasons for great subject to subject variations in riboflavin output in this experiment may well have been differences in ability to absorb flavin. The results with Group B (Fig. 3) are in agreement with those of Group A. In Group B the differences between the yeast periods in regard to the excretion of riboflavin tend to be somewhat greater and the individual differences among the subjects are smaller.

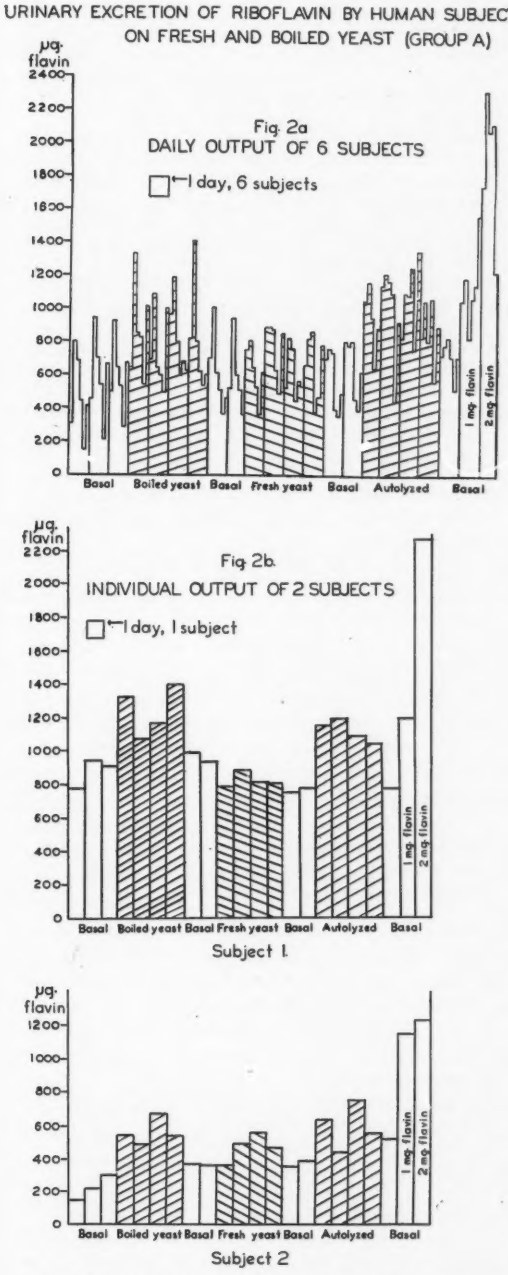

Fig. 2. Individual daily output of urinary riboflavin by each of 6 subjects (Group A) for 7 periods as indicated. The riboflavin in the diet sample assayed was 1.6 mg.; the 4 cakes of yeast added 0.78 mg. more daily, a 48 per cent increase.

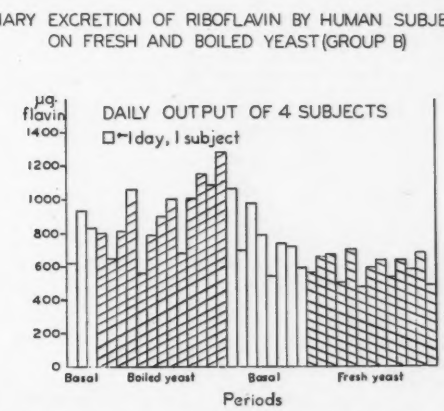

Fig. 3. Urinary excretion of riboflavin by human subjects on fresh and boiled yeast (Group B). Individual daily output of urinary riboflavin by each of 4 subjects for 4 periods as indicated. The riboflavin in the diet sample assayed was 1.6 mg.; the 3 cakes of yeast added 0.59 mg., a 36 per cent increase.

[6] Thanks are due to Mark E. Nesbit, M.D., Clinical Associate in Neuropsychiatry, University of Wisconsin Medical School, for generously making these examinations.

CONCLUSIONS

The urinary excretion of thiamin by 6 human subjects on a uniform diet to which 4 cakes of yeast were added was more than twice as great during the period when the yeast was prepared by boiling as when the yeast was eaten fresh. The most logical conclusion to be drawn from these observations is that thiamin is more completely assimilated from yeast which has been boiled than from untreated fresh yeast. Confirmation of this interpretation is found in the fact that there was a much greater elimination of thiamin in the feces of subjects fed fresh yeast than when they were fed an equal amount of fresh yeast which had been subjected to boiling. These differences in assimilability of thiamin from fresh and boiled yeast appear to be due to the differences in digestibility. Obviously the resistance of the intact cell to digestive processes may account for the observed differences in paths of elimination.

The trend of variation in the elimination of riboflavin agreed in general with that of thiamin although the contrast between the fresh and boiled yeast periods was not so marked and individual differences were great.

REFERENCES

(1) PARSONS, H. T., COLLORD, J., GARDNER, J., STRONG, F. M., AND PETERSON, W. H.: Utilization by man of the vitamin B complex in fresh yeast. Fed. Am. Soc. Exper. Biol., Fed. Proc. 1: 129, 1942.

(2) WALKER, R., AND NELSON, E. M.: Fresh and dried yeast as sources of vitamin B_1. Am. J. Physiol. 103: 25, 1933.

(3) MONTGOMERY, B. E., BOOR, A. K., ARNOLD, L., AND BERGHEIM, O.: Destruction of yeast in the normal human stomach. Proc. Soc. Exper. Biol. & Med. 28: 385, 1931.

(4) WOJTA, M. C.: The excretion of thiamin in the urine after the ingestion of raw and cooked yeast and crystalline thiamin chloride. Master's Thesis, University of Wisconsin, 1940.

(5) SCHLUTZ, F. W., AND KNOTT, E. M.: The use of a 10-day period for the assay of vitamin B_1 by rat growth technic. J. Nutrition 12: 583, 1936.

(6) SCHLUTZ, F. W., AND KNOTT, E. M.: Factors affecting the vitamin B_1 content of evaporated milk. Proc. Soc. Exper. Biol. & Med. 40: 532, 1939.

(7) SNELL, E. E., AND STRONG, F. M.: A microbiological assay for riboflavin. Indust. & Engin. Chem., Anal. Ed. 11: 346, 1939.

(8) LEONG, P. C.: Vitamin B_1 in the animal organism. II. A quantitative study of the metabolism of vitamin B_1 in rats. J. Biol. Chem. 31: 373, 1937.

(9) SCHULTZ, A. S., LIGHT, R. F., AND FREY, C. N.: Vitamin B_1 metabolism in man. Excretion of B_1 in urine and feces. Proc. Soc. Exper. Biol. & Med. 38: 404, 1938.

(10) JOHNSON, L. V., AND ECKARDT, R. E.: Rosacea keratitis and conditions with vascularization of cornea treated with riboflavin. Arch. Ophth. 23: 899, 1940.

(11) MEYER, C. E., BURTON, I. F., AND STURGIS, C. C.: Riboflavin absorption in pernicious anemia. Proc. Soc. Exper. Biol. & Med. 50: 251, 1942.

Yeast as Human Food

Should the time ever come when the land fails to provide enough good protein to meet all human needs, an unlimited supply can be found in the sea . . . the zooplankton . . . would provide a first class human food. . . . More practical than plankton . . . is the micro-organism yeast. A by-product now and mostly thrown away by brewers, yeast could be grown in limitless amounts. Dried yeast is largely protein, 40 to 55 per cent. Most of the nitrogen-free remainder is material consisting of a mannose polysaccharide. The amount of fat is small, from 1 to 3.5 per cent, but this is rich in steroids. The content of vitamins of the B complex is very high; some vitamin A is present and much ergosterol, which by ultraviolet irradiation can be changed to vitamin D. This is important because almost no foods other than fish liver oils provide significant amounts of vitamin D. Among the amino-acids found in the proteins of yeast are alanine, valine, phenylalanine, glutamic acid, aminoacetic acid, leucine, oxyproline, aspartic acid, cystine, methionine, tyrosine, proline and tryptophan. The percentage of these ranges from 10 down to 0.5 in the order given. The diamino-acids present include lysine 10 per cent, arginine 5 per cent and histidine 5 per cent.

Some brewers' yeast is on the market now, sold mainly as a source of vitamins. . . . Bakers' yeast also has virtue as a food for persons who can eat it without abdominal distress. It is much less rich in thiamine than brewers' yeast; also some question remains as to the utilization by man of the vitamin B complex in fresh yeast. . . . The possibilities of yeast as human food deserves more technological attention. Two major defects in many modern diets are relatively small provision of certain vitamins of the B complex and insufficiency of biologically superior protein. Both deficiencies could be limited by using yeast as food.—*Wilder, R. M., and Keys, T. E.: Handbook of Nutrition. XIV. Unusual Foods of High Nutritive Value. J.A.M.A. 120: 529, 1942.*

Food in the Present Emergency[1]

ARTHUR C. BARTLETT

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WHEN a lifeboat crew leaves a sinking ship and strikes out for an unknown destination, a system of rationing is set up immediately. The boat may be well stocked with food and water—enough to give each man an ample diet for a week, perhaps, or a fair diet for as long as two weeks. But the castaways have no assurance that they will be picked up within one week, two weeks, or two months. So they prepare for the worst.

In a manner of speaking, we are in the same boat. Our food supply situation would be more favorable if we could depend on the war being over by January 1 or any time in the relatively near future. But this looks like a long war and we must plan accordingly. We must pull in our belts for the duration. We must handle our food supplies in such a way as to get the maximum nourishment out of the foods that require the least labor to produce.

The pressure that is compelling us to change our diets is steadily increasing. Crop production this year will set a new high record, true, but as the months go by, shortages of manpower, transportation, and materials will make it more difficult to turn out the food we need. At the same time, the demands from our armed forces, our allies, and our civilians will increase. The solution of the problem here, as in other countries at war, will be to shift our diet toward the cheaper foods that we can produce most abundantly.

We may as well realize right now that our path leads to plainer living rather than to easier living. We must all eat more of what we need even if this means less of what we like. We must learn that we can fight as well on cabbage as on Brussels sprouts, as well on codfish as on oysters, as well on bread and butter as on French pastry, and as well on skim milk as on whole milk.

ADJUSTING TO AVAILABLE FOOD SUPPLIES

In many cases we must use new foods—by-products, perhaps, of farm products manufactured for other war needs. This year, for instance, farmers have virtually doubled their production of soy beans and peanuts in order to produce the oil needed to replace oils formerly imported. After the oil is pressed out of these soy beans and peanuts, a highly nutritive residue, rich in protein, remains. Yet we are using only a relatively small proportion of this food for human consumption. In the near future much more of this food must be made available for use in our everyday diets. Mixed in breads and soups, or with cereals or meat products, these protein flours and grits can go a long way toward improving our national level of nutrition.

Housewives will be asked, too, to buy more foods in bulk. This will save badly needed tin for use in canning food to be sent to our men on the fighting fronts or to our allies. Sauerkraut, for instance, is now being put up in barrels. It won't be quite as handy, of course, for a housewife to handle kraut in the bulk. But each time she does, she will be definitely helping our war food effort.

There are now some undersupplies, and there will be more, in relation to the domestic demand. Our meat supplies, for instance, are at a record high, with production during the current fiscal year expected to total some 24 billion pounds. But the war needs of our Army and Navy, and those of the other United Nations, will take 6½ billion pounds of the red meats—beef, pork, veal, lamb, and mutton. If each of us were eating the same quantity of meat we ate during the 10 years from 1930–39, there would be no need for any thought of meat rationing. That 17½ billion pounds would be plenty. But with more money to spend, we are eating more meat. And we would eat even more if it were available. So we must distribute the supply we have—call it rationing—so that each will have a fair share.

Take other foods. Some will be scarce for the duration, some will be scarce for varying periods between seasons, and some will be scarce when war's demands are unusually heavy. The purpose of rationing is to assure the fair distribution of these scarce foods, and there is sure to be rationing of many foods as the war goes on. The thought of impending rationing of some foods should not cause alarm. By

[1] Presented before the American Dietetic Association, Detroit, October 21, 1942.

planning our food purchasing and our menus, we shall be able to keep ourselves well fed.

It will call for more work and planning on the part of dietitians, nutritionists, and teachers. Yours is the task of planning menus, purchasing the food, and managing its preparation. Yours, too, is the task of teaching others the facts about our food situation and advising others on how to manage their home food supplies better. As a nation, we must become more and more nutrition conscious in the days ahead, we must plan our diets to utilize the food we will have available, and to care for the needs of our people most advantageously.

FOOD RATIONING IN BRITAIN

Great Britain met this problem early in the war. It was a matter of urgent war necessity. Today, despite severe shortages, many of her people are eating more than they ever ate before and working harder as a result. A huge subsidy on food accomplishes the purpose there. Food variety is very limited. But food costs are kept down to a level at which even the poorest may buy his rationed share.

In Britain, the requirements, in terms of vitamins and calories, were carefully worked out. Each sailor, each soldier, each man, woman, and child at home was taken into consideration. Each must be fed, officials knew, if Great Britain's war effort was to succeed. A riveter in a shipyard burns up more physical energy than a clerk. A child needs certain body-building foods which an adult can do without. These special needs were considered in the overall food plan.

Out of this careful planning grew a complete picture of the nutritive needs of the nation. These needs were then translated into milk, eggs, meat, and vegetables. That gave a national shopping list; a list that was complete, for the quantitative and qualitative needs of each inhabitant of the country had been carefully considered.

The best-fed person in Great Britain, we are told, is a sailor. He must be alert, keen-eyed, and ready at all times to do whatever heavy work is necessary on board ship. His food ration, accordingly, is boosted far above that of, say, a London office worker.

The second-best-fed man is a worker in a heavy industry. The third best is not a man at all, but a child. To the children, Britain realizes, belongs the tomorrow for which we are fighting. If their bodies and minds are to be strong when that tomorrow arrives, they must have the proper food now, war or no war. Accordingly, then, children have priorities on certain types of food. A young child is allowed more eggs than is an adult. Citrus fruits and their juices are set aside for the children. Good food, as well as good care, is given school children and younger children whose mothers are working in war plants.

When the British food rations were set up, it meant a drop in food consumption for some civilians. But there were millions of Britons who never had been able to afford as much food as the ration allowed. So Britain's wartime food program, though it is a system of rationing the short supplies available, actually has enabled many persons to eat *better than they did in peacetime*.

Our own food problems differ in many respects from those of Britain. What works there is not necessarily destined for success in this country. Our own supplies are largely home-raised, while Britain must depend on imports for the bulk of her foods.

But I wonder if we might not find it profitable to tear at least one leaf from Britain's notebook—make certain that our own children and our underprivileged are furnished an adequate diet? Only by having each of us strong can our nation survive to carry out a just and equitable peace.

PUBLIC FEEDING PROGRAMS IN THE UNITED STATES

This is the reason, in a few words, why we should continue, perhaps even expand, our public feeding programs. This is the reason many of you must take extra pains in planning your school, institution, or hospital meals. This is the reason the Agricultural Marketing Administration is more certain than ever that the School Lunch, School Milk, and Food Stamp Plans are just as urgently needed—perhaps more so—in wartime as they were in peace.

These programs were initiated partly as a system of disposing of farm surpluses, partly as building blocks in a long-range effort to improve the diets of our citizens. Surpluses now are little more than a memory. Indeed, perhaps it is a question whether or not we ever had any, for it is difficult to say a food is in surplus if millions of people are undernourished because of the lack of it. Let us hope we shall never again hear anything about surpluses as long as there are hungry mouths to feed.

But though the surpluses are gone, except in a very limited and local sense, the need lingers on. Here is a case in point: The principal of a school in the Middle West began paying more attention to the lunch-boxes of his pupils. He discovered that the children were actually being undernourished through bad choice of foods. Some of the children were just not well enough fed in order readily to absorb education. If the children were physically undernourished, the chances are that mental and moral growth was held back as much and perhaps even more than was their physical growth. Well-balanced lunches—a complete noon meal at school—reasoned this principal, were one answer.

Last January he succeeded in getting a school lunch program started in his school. At the weighing-in of the children at the beginning of the program, it was discovered that 25 per cent of the pupils were at least 10 per cent underweight. In June, after only a few months of participation in the lunch program, a weight check showed that only 11 per cent

were still 10 per cent underweight. We fully realize that weight is only one criterion of nutritional status, but teachers reported also a greatly improved classroom attitude and less of what they described as "last-period fog."

These are results we can measure. And that's no isolated case. From every corner of the country reports have reached us of similar and even better results. Four million children received lunches under the program last year, with a peak of over 6 million in March, and we hope to see that number reach 9 million this year. Our children are still with us. Their young bodies need all the care we can give them. They must be strong when their turn comes to take over a share in the reorganization of a better peacetime world.

Some consider it illogical to continue public feeding programs at a time when food reserves are being stretched to meet war needs. The School Lunch Program, the School Milk Program, the Food Stamp Plan—all these would be abolished. You as nutritionists probably know much better than I how dangerous this would be. You know that in time of stress it is essential that everyone receive an adequate diet. Only in that way can we hope to ensure ourselves against epidemics of disease and assure ourselves the highest volume of war production. A poorly-fed person is easy prey for sickness. An undernourished man will build very few planes, tanks or guns.

Back in the days when surpluses were large and frightening, our Food Stamp Plan was set up. It was designed to encourage the use of foods which were in the greatest abundance, and to add to the nutrition of families who could not otherwise afford enough food. Dependent children, the aged, the unemployed, and the blind, crippled or ill unemployables are the principal groups it helps.

Most of you, I am sure, are familiar with how it works: Families or individuals certified by welfare officials as being needy are given the opportunity to buy orange stamps which can be exchanged in cooperating food stores at face value. These orange stamps are just like cash; they will buy any food in the store. There's no profit to the needy person yet, he has just transformed his dollars into stamps, which have the same value. The bonus comes in the form of blue stamps. With each dollar's worth of orange stamps, the blue stamps, usually 50 cents' worth, are given. These blue stamps can be exchanged for certain foods which are on the blue stamp list. The Government reimburses the grocer for the cost of the blue stamp foods.

The blue stamp list has been a list of surpluses. Even now the items on the list are those which are most nearly in abundance, and which should be moved to encourage a continued high production, which we shall need for war purposes. Right now, for instance, wheat and corn products are the main items on the list. Others include fresh apples, fresh vegetables, potatoes, and dry edible beans.

But might it not be possible to use such a stamp plan mechanism in a broader way? Some rationed foods might be put on a stamp list, not because they need to be moved from the farm or market place, but to put them within the reach of low-income people. This would be extending the sharing principle, making it possible for even the low-income group to build themselves up nutritionally to a point where they could be of the maximum value to the war effort. Then these people would not only be *allowed* to buy their share, as far as their ration books are concerned; they would also be *able* to buy their share, as far as their pocketbooks are concerned.

PLANNING ADEQUATE DIETS FOR ALL

As our need for a better national health becomes more and more pressing, it would be utterly illogical to deny adequate diets to any of our population. With war work taking the time of more and more mothers, the need for well-organized school lunch programs grows. With rising food costs, we must be more than ever on guard to make certain that every American receives the food he needs.

Our soldiers and war workers come first, of course. Of the soldiers' diets we need have no fear. Eating more than a ton of food a year, far more than he did in civilian life, each of our soldiers and sailors is adequately cared for. To care for workers and women and children on the home front is our job—yours and mine. To do this job successfully is going to demand more and more planning from each of us. We must plan our purchases and our menus to conform to the available food supplies.

One way is to watch for the Victory Food Specials. This program is designed to point out the foods that need to be consumed in maximum quantities at a particular time. A "special" may be designated to prevent waste, to help keep production up, or to relieve the buying pressure on foods that are scarce. It is not a price support program but a program of food management. What we buy and eat today helps to determine what we will have to eat tomorrow, and what will be available to send to our fighting men and to our allies.

We are proud, very proud, of the vast flood of food going to our soldiers and our allies. It is going to Alaska, Australia, Great Britain, Trinidad, Egypt, Russia, New Zealand, Labrador, Iceland, India, Madagascar, China, Bermuda, and Syria. Our food went into battle before our soldiers did. It is now fighting on more fronts than are the armies of any one single nation.

This is bound to affect home food supplies. War's demands now take 60 per cent of American cheese production. A fourth of all meats must go to our armed forces and to the other United Nations. A third of the production of canned fruits and vege-

tables, about the same proportion of dried fruits, and 30 to 40 per cent of dried beans and peas must be set aside for war uses. A full 60 to 85 per cent of canned fish must be taken from the domestic market, along with 45 per cent of dried skim milk, 70 per cent of dried whole milk, and 40 per cent of evaporated milk.

Fortunately, we have this food, but it's not by accident. Farmers began "tooling up" for war two years ago, long before the accelerated industrial program became general. It was at this time that Secretary Wickard asked them to increase production. When that increase was asked, prices were low—too low to arouse much interest in putting in 12 to 16 hours a day to produce more. But the Secretary asked for more food, told the farmers it would be needed, and they produced more. Our farmers have done a splendid job.

So we will have enough food. To see that it is fully utilized is *our* responsibility. By having a clear understanding of the problems involved, by working out answers to those problems, and by making every-day use of the conclusions, *you* as experienced dietitians and nutritionists, can play a very large and tremendously important part in the management of wartime food supplies. It is to the membership of this and similar associations that the country must look for leadership at this time when food habit adjustments are in their infancy.

PHOSPHORUS

Phosphorus flows through the organism in the blood stream, chiefly in the form of the ions of orthophosphoric acid. This flow usually forms an adequate supply of this element for metabolic needs of the organism, these needs being protected by the fact that all withdrawal of the mineral for calcification stops long before the supply for other needs is threatened.

In addition to compounds of phosphorus with proteins and lipids, phosphate enters into a considerable number and variety of chemical combinations which have in common their solubility in acid, their extreme lability, and their association with the utilization of carbohydrate, their chief function being in the transfer, rather than in the storage, of energy. Only in the case of creatine phosphate does there appear to be any appreciable storage of energy in the form of energy-rich phosphate bonds, this stored energy being held ready to meet the demands of muscular contraction.

The organism appears to be able to synthesize all of the complex organic compounds of phosphorus from inorganic phosphate.—*McLean, F. C., writing on "The Economy of Phosphorus in the Animal Organism" in: The Biological Action of the Vitamins, p. 200. Chicago: The University of Chicago Press, 1942.*

THE PROPER USE OF VITAMINS IN MIXTURES

Long after beriberi, rickets, scurvy and pellagra were recognized and described by physicians, the concept arose that certain "accessory food substances" are essential for life and health. With the development of this concept, a milestone in medicine was passed. Of late, considerable research has been directed toward the isolation and synthesis of so-called accessory food factors more commonly known as vitamins, and some of these substances have been found effective in the treatment of rickets, scurvy, beriberi and pellagra. The years following the brilliant investigations leading to the isolation and synthesis of riboflavin, thiamine hydrochloride, pyridoxine hydrochloride and pantothenic acid and the recognition of the role of nicotinic acid have seen many patients near death from dietary deficiency diseases restored to health by the proper use of some of these compounds. The administration of nicotinic acid to pellagrins confined to custodial hospitals for the insane may enable them to regain their normal mental state and to return to a satisfactory life in their homes. The giving of thiamine to patients has brought rest and freedom from pain arising from nutritional neuritis so severe that they could not sleep even after taking narcotics. Persons whose eyes hurt so badly through lack of riboflavin that they could not read or endure a lighted room have been relieved by riboflavin. These dramatic therapeutic effects are tending to overshadow the necessity of finding effective methods of prevention. —*Council on Foods and Nutrition: J.A.M.A., 119: 948, 1942.*

Foods that Disagree with Healthy People

III. The Influence of Method of Preparation on the Disturbing Effects of Onions[1]

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IN ATTEMPTS that have been made to determine what foods disagree with people, onions have been found to be at the top of the list of foods productive of various forms of digestive disturbances. The raw onion is the chief offender but cooked onions are also a source of discomfort for some persons (1–3).

The onion belongs to that group of vegetables commonly described as strong flavored which includes the cabbage and onion families. Recently, vegetables belonging to this group have been described more accurately as "sulfur-containing" since not all of such vegetables are strong flavored in the natural state. Vegetables of the cabbage family, for example, are mild when raw but tend to become strong during the cooking process. Onions, however, are very strong in the raw state but tend to lose some of the irritating substances when cooked.

The sulfur content of onions has been analyzed by Masters and McCance (4). The sulfur was found chiefly in the form of allyl sulfide with some allyl isothiocyanate. Allyl sulfide, being volatile, escapes readily in the steam upon cooking unless a cover on the pan prevents its escape. Simpson and Halliday (5) state that allyl isothiocyanate may be decomposed to yield hydrogen sulfide which is largely responsible for the disagreeable odor and flavor of cooked vegetables of the sulfur-containing class.

In a previous paper relating to the behavior of sulfur compounds in cabbage (6), the cooking of vegetables of the sulfur group in an open kettle was stressed. A closed kettle retains not only the volatile sulfur compounds which mar odor and flavor of the cooked vegetable, but it also retains volatile vegetable acids which favor decomposition of the sulfur compounds present. A short cooking period was highly favorable, in the case of cabbage, in preventing digestive disturbances which sometimes follow the eating of cabbage.

[1] Received for publication September 7, 1942.

The study reported here was undertaken to determine whether method of preparation of onions is related to the disturbing effects experienced by some persons.

EXPERIMENTAL PROCEDURE

A group of 24 college students ranging in age from 20 to 45 years served as subjects for this dietary study. Ten of the number were men. Only persons who said they were subject to discomfort following the eating of onions were selected. The subjects were all healthy and in good physical condition according to health statements signed by physicians. So far as known there were no cases of allergy or gastro-intestinal disease.

Preliminary to the experiment, subjects were questioned carefully in order to determine their reactions not only to onions but to other foods. Foods mentioned as being disturbing were not included among the foods served during the experimental period of five consecutive days.

Subjects were allowed to choose their own breakfasts but were asked to limit their choices to foods known to have no disturbing effects. They were also asked to omit any between-meal eating and to avoid all carbonated beverages during the experimental period. Luncheon and dinner consisted of simple foods, simply prepared with a minimum of fat and not over-seasoned.

Onions (Texas Silver-skin Bermuda) in some form were included in the luncheon menu every day, accompanied by potatoes, bread, butter, fruit and a beverage. Potatoes were chosen as the other vegetable because they were not listed as a disturbing food by any subject, and also because they are bland in flavor. Dinner included meat (beef or veal) chiefly braised, broiled, or roasted, a green vegetable, salad, bread, butter, and fruit or a simple egg and milk dessert. Table 1 shows the different methods used in preparing the onions.

The onions were cooked by the method given in Halliday and Noble's *Hows and Whys of Cooking*, except that the length of cooking time varied according to the time specified in Table 1.

The amounts served were approximately one-half cup, weighing 90 gm., or an amount believed to be sufficient to test the disturbing effect of the vegetable.

On the day following the eating of onions, a questionnaire was filled out for each subject by the person in charge of the experiment. Questions were asked relating to the type of disturbance experienced, if any, the time of onset of the disturbance and its duration. A record was also kept of the foods eaten by the subject at breakfast. Table 1 also shows the percentage of subjects disturbed by onions prepared by different methods.

DISCUSSION

According to the findings, the reactions of both sexes were very much the same except that some of the women complained of abdominal and epigastric pain with regurgitation, whereas the men reported reactions no more disturbing than gas, belching, "indigestion," and prolonged after-taste. Two subjects were not disturbed by eating onions prepared by any of the five methods.

TABLE 1

Percentage of subjects disturbed by onions prepared by different methods

MEAL	PREPARATION	PERCENTAGE OF CASES REPORTING DISCOMFORT
1	Cooked until tender (30 min.) in an open kettle	20.83
2	Cooked 1½ hr. in an open kettle	41.66
3	Cooked 1½ hr. in a closed kettle	66.66
4	Raw, sliced and soaked in vinegar 1½ hr. (2½% acid)	86.90*
5	Raw, sliced	91.66

* This percentage was based on 23 subjects since one subject refused to eat her portion of onions for that day because she was still very uncomfortable from the previous day.

As was previously shown in the cooking of cabbage (6), the fewest digestive upsets followed the eating of onions cooked for the shortest time (30 minutes). The subjects stated that onions prepared by this method were much more palatable, more attractive, and seemingly more digestible.

One subject was so nauseated and experienced such abdominal distress during the first three days, that she refused to eat onions on the fourth day. She did, however, eat the raw, sliced onions without vinegar on the fifth day and complained of severe reactions, but onions that had been cooked only 30 minutes caused this subject only slight gas formation and after-taste.

The length of time prior to the onset of symptoms varied from immediately after ingesting to four or five hours after the food had been eaten. The duration of disturbances varied from a few minutes to four or five hours except in the case of the subject mentioned above who was nauseated throughout the experimental period after the first day. An after-taste was experienced by some which continued until the following morning. Table 2 gives the number and types of reactions experienced.

TABLE 2

Number of cases reporting various types of disturbances following the eating of onions prepared by different methods

DISTURBANCE	PREPARATION					
	Cooked until tender, 30 min.	Cooked 1½ hr. (uncovered)	Cooked 1½ hr. (covered)	Raw, sliced, soaked in vinegar 1½ hr.	Raw, sliced	Total
Gas	1	3	8	10	14	36
Belching	1	2	7	9	12	31
After-taste			2	4	5	11
Regurgitation			3	3	4	10
"Indigestion"				3	5	8
Abdominal pain	1	1	1	2	3	8
Epigastric pain			2	2	2	6
Nausea			2	2	2	6
Abdominal distention			1	1	1	3
Headache	1		1		1	3
Diarrhea	1	1		1	1	4
Total	5	7	27	37	50	126

TABLE 3

Percentage of cases reporting various types of reactions

DISTURBANCE	PERCENTAGE OF CASES AFFECTED
Gas	42.88
Belching	24.60
After-taste	9.52
Regurgitation	8.01
"Indigestion"	6.34
Abdominal pain	5.55
Epigastric pain	4.28
Nausea	4.28
Diarrhea	3.17
Abdominal distention	2.35
Headache	2.35

The total number of disturbances, as indicated by the figures in both the last column and the last line of Table 2, was, of course, much greater than the number of subjects because some subjects experienced more than one and others as many as four types of disturbances.

Table 3 shows the percentage of cases reporting different types of disturbances.

SUMMARY AND CONCLUSIONS

In 24 subjects who had said they were disturbed by eating onions in some form, 91 per cent experienced reactions of discomfort and some experienced as many as four types of disturbances following the ingestion of onions prepared according to five methods.

Raw onions were the most disturbing, and raw onions soaked in vinegar ranked next. Of the cooked onions, those cooked for 1½ hours in a closed kettle were the most disturbing while the onions cooked in an open kettle only until tender (30 minutes) affected only about one-fifth of the subjects. While there have been some reports that raw onions soaked in vinegar can be tolerated better than plain raw onions, those so prepared were only slightly less disturbing to this experimental group than the plain raw onions.

REFERENCES

(1) Alvarez, W. C., and Hinshaw, H. C.: Foods that commonly disagree with people. J. A. M. A. 104: 2053, 1935.
(2) Alvarez, W. C., Hinshaw, H. C., and Frank, R. J.: Proc. Staff Meetings Mayo Clinic 10: 555, 1935.
(3) Hughes, O.: Foods that disagree with healthy people. J. Am. Dietet. A. 12: 314, 1936.
(4) Masters, M., and McCance, R.: The sulphur content of foods. Biochem. J. 33: 1304, 1939.
(5) Simpson, J., and Halliday, E. G.: The behavior of sulphur compounds in cooking vegetables. J. Home Econ. 20: 121, 1928.
(6) Hughes, O., and Campbell, L.: Foods that disagree with healthy people. II. The influence of the method of preparation on the disturbing effects of cabbage and cauliflower. J. Am. Dietet. A. 15: 24, 1939.

DIET IN PREGNANCY

A medical committee appointed by the People's League of Health to investigate the nutrition of expectant and nursing mothers has for the first time obtained clear evidence of the importance of diet. A survey was made of the records of over five thousand women and is believed to be the most comprehensive ever carried out. The object was to show whether the addition of the appropriate vitamins and minerals to the daily food would have a beneficial effect on the course of pregnancy and labor and on the newborn child. In general there was no especial deficiency of first class protein in the diets, but a shortage of calcium was found in about 70 per cent of the women, most of whom were taking insufficient milk and cheese. There was a greater deficiency of iron, only 2 per cent having a satisfactory intake. There was much deficiency of vitamins. More than half of the women took insufficient vitamin A. Vitamin B insufficiency was less noticeable; the diets were not badly defective, but nearly half the women were not taking as much as was desirable. The same held for vitamin C. The committee decided on a daily supplement to the deficient diet of saccharated carbonate of iron 18 grains (1.15 gm.), calcium lactate 30 grains (2 gm.), iodine, manganese and copper in minute quantities, adsorbate of vitamin B_1 15 grains (1 gm.), vitamin C 100 mg. and halibut liver oil (vitamins A and D) 6 minims (0.4 cc.).—*Foreign Letters, J.A.M.A., 120: 385, 1942.*

DIET AND HYPERTENSION

Dietary management of hypertensive patients is not a major factor in the control of the disorder. A well balanced ration, with adequate protein (at least 1 gm. per kilogram body weight daily), liberal vitamins and minerals and designed to reduce weight in the obese is all that is necessary. Anemia, which is often secondary to iron deficient diets, greatly enhances the ill consequences of the vascular disorder. Particularly important is a free intake of fluids. Unless there are specific contraindications, at least 3 liters of fluids should be consumed daily; the urinary volume for twenty-four hours is best kept at or above 1500 cc. Coffee and tea are permissible, especially in the morning, but should be omitted in the evening as caffeine may interfere with normal rest and sleep. Condiments and spices should be omitted from the diet. Salt is permissible in normal quantity, but excessive oversalting is unwise. Alcohol, in moderation, is desirable, especially for older patients and/or those who exhibit evidences of arteriosclerosis. The essential element in the dietary regimen of hypertension is moderation in all things. The management of this complex disorder involves many approaches other than through nutrition.—*Queries and Minor Notes, J.A.M.A., 120: 411, 1942.*

Present Supply and Use of Fats and Oils[1]

SIDNEY G. KAY[2]

THE question as to the future supply of our fats and oils is fraught with many uncertainties which could swing the balance to the side of plenty or to that of shortage. These factors, therefore, must be examined individually and collectively.

The peculiar aspect of the picture is that there is a shortage amidst present abundance. The need for restricting consumption in spite of record supplies, which is the most characteristic feature of the meat situation, may well be duplicated in fats and oils, and for the same reasons. Increased purchasing power and larger Lend-Lease requirements make the demand rise even faster than the supply.

Let us examine the figures at hand, and try to evaluate future needs. By this means we may get the picture of the course of events for the next six months or a year.

Output of vegetable oils from this year's domestic crop will in all probability exceed 4 billion pounds, as compared with 2½ billion pounds from the crop of 1941. The principal increases are in soy beans and peanuts. The increased planting in soy bean acreage resulted in a crop of 1½ billion pounds, almost twice as much as the year before. Peanuts will supply 420 million pounds against 55 million last year. The final figures for cottonseed will show much larger poundage over 1941. The output of animal fats likewise is rising, and is expected to reach nearly 8 billion pounds during 1942–43. Thus the total output of fats and oils from domestic sources will come close to 12 billion pounds, an increase of 20 per cent over the amount made available during 1941–42.

Against the increase of domestic figures of production, the loss of imports from the Far East of palm oil, cocoanut oil, perilla, tung, and other oils will affect us adversely in the amount of about one billion pounds. Imports from South America and other countries will also be curtailed by the shortage of cargo space and the difficulty of sea transport. Even with the loss of imports, however, the domestic gains will result in larger total fat and oil supplies this year than ever before.

At this point credit should be given to our Department of Agriculture, headed by Claude R. Wickard. The all-time high in production is the result of plans laid out by the Department of Agriculture 18 months ago, and 9 months before the attack on Pearl Harbor. This maximum expansion was their directly controlled program, and the result has more than justified their foresight. This is in direct contrast to attempted legislation now to raise parity prices beyond reasonable limits. The farmer knows that if the prices of his crops are too high, he in turn will not only have to pay exorbitant feed prices, but labor, when possible to obtain, will be higher than his ability to pay, and if labor is unobtainable, the crops cannot be planted or harvested. This aspect is as important to our war effort as is our actual fighting front.

The future demand cannot be forecast as accurately as the supply. We must take into consideration that all indications point to materially larger Lend-Lease requirements. With consumer purchasing power rising and with prices fixed at ceiling limits domestic consumption must be expected to increase, unless restricted by government action. Larger than normal stocks of fats and oils are most desirable in war times as a reserve against unforeseen changes in requirements for supplies.

With the above in mind, the first government restrictive step was taken on September 22, 1942, when the WPB issued an order, retroactive to September 1, which limited to 90 per cent of normal the amount of fats and oils which processors may use in such products as prepared shortenings, mayonnaise, and salad dressings. The attempt to collect fats through the housewife should result in accumulation of about one-half billion pounds a year, and this will help to offset the loss from imports from the Far East. Most of the oils from the Far East went into the soap trade, and the fat that is being collected from the housewife will replace these oils in soap

[1] Presented before the American Dietetic Association, Detroit, October 22, 1942.

[2] Conway Import Company, Inc., Long Island City, N. Y.

manufacture. The manufacture of soap is important because in the saponification process great quantities of glycerine are produced, and since it is necessary for the war effort to produce all the glycerine possible, it is proper to say that soap today is merely the by-product in the manufacture of glycerine. One of the bright sides of the picture is the high degree of interchangeability of all of the fats and oils.

Attempts are now being made to decrease the usage of high explosives for civilian purposes and also to recover a higher percentage of glycerine from soaps, both of which, if successful, will add millions of pounds of glycerine without reduction of fat stocks. Also, there are large quantities of nuts that grow wild in South American jungles, which will yield large quantities of oils if some method can be found to harvest and transport these nuts from their present inaccessible areas.

With the education of the housewife and others in the conservation of fats, and the growing tendency of the wholesale field to be cooperative, there is every indication that considerable wastage will be eliminated.

CONSUMPTION OF FATS IN COOKING

The natural question that arises is how each member of the American Dietetic Association can help in the program of conservation of fats and oils. One of the principal sources of wastage of fats and oils, I believe, is in the process of deep frying. There are a few simple and fundamental rules which should be followed, concerning the following factors: the kinds of fat used, the preparation of the food, the methods used, and the care of the fat and frying equipment.

First, it is most essential that fat be able to stand up under extreme temperatures encountered in deep frying. Smoking, as you know, indicates the breaking down of the fat. Exposure to the air and moisture from the foods cause fat to absorb oxygen and become rancid. A good fat will resist the tendency to rancid tastes and odors. A fat must be neutral in flavor and odor so that it will not impart objectionable flavors to the food fried in it. The melting point of the fat should be such that foods fried in it are easily digestible.

Next, a great deal depends upon how carefully foods are prepared for general frying purposes. If a food is dipped in cracker or bread crumbs, care should be taken to apply them as smoothly and evenly as possible. Any excess crumbs should be removed before frying. Some foods, especially those containing fat or protein, naturally brown more easily than others. A coating of eggs, bread crumbs and milk can be applied to food lacking these two constituents which serve to produce a brown surface. Excessive moisture on the surface of the food material will prevent browning action, and a large quantity of moisture will produce spattering and foaming. It is also essential that the individual pieces to be fried be of uniform size, otherwise smaller pieces will be cooked through or even burned before the larger pieces are done.

The third point to be emphasized is that sufficient fat should be used to cover completely the food that is being fried. However, the kettle should not be so full that the hot fat will bubble over when food is added. Too much food added at one time will cause bubbling over and at the same time cause the temperature of the fat to be lowered; the results will therefore be poor and the fat wasted. Whether gas or electricity is used, it pays to have thermostatic control to maintain the desired temperature, especially if a considerable amount of continuous frying is to be done.

The right frying temperature can be determined for any food by a few trials. If the fat is not hot enough the food will cook through slowly. It will soak up much fat and the surface will not brown

TABLE 1

Time and temperature for cooking various foods

FOOD	TEMPERATURE FAHRENHEIT	TIME
		minutes
Almonds	240°	4–6
Cashews	275°	3–5
Chicken (in batter)	375°	5–8
Clams	380°	1½
Cutlets and breaded chops	360–400°	5–8
Doughnuts	385–390°	3–5
Fillets	370°	4–6
Fish cakes (croquettes)	390°	1
Frankfurters	270°	1
Fritters	370–380°	2–5
Noodles, Chinese	380°	1
Oysters	390°	1
Peanuts (blanching)*	300°	3–5
Peanuts, Spanish	350°	3–5
Perch and smelts	370°	3–5
Potatoes, French-fried (blanching)	365–375°	5–12
Potatoes, French-fried (browning)	395–400°	2
Potatoes, latticed	350–375°	3–10
Potatoes, Saratoga chips	325°	5–8
Potatoes, shoestring	325–335°	3–10

* *Editor's Note:* In response to an inquiry, Mr. Kay states that he uses the term blanching in connection with deep frying in the following sense: "Blanching is a preheating process, and is used in the case of French-fried potatoes to bring them to a point of being almost done. They are almost cooked both inside and out. Then they are removed from the fat, and when they are to be browned they are again immersed in a fat which is 25 to 30 degrees hotter than the original fat. This operation is usually followed where large quantities of potatoes are to be fried, and there is not sufficient time to carry it through with one immersion."

properly. Fat should never be allowed to drop below 300° F. while in active use for frying; on the other hand, it must not be too hot because the food will brown on the outside and not be cooked inside. The length of time to fry foods depends on the amount to be fried at one time. Table 1 shows the temperatures and cooking time suggested.

Finally, in regard to equipment, a deep frying basket has many advantages as it permits the food to be immersed slowly in the fat. This prevents sudden cooling of the fat with consequent high fat absorption by the food. If the bubbling becomes too severe the basket can be withdrawn until the bubbling subsides. If a gas-fired kettle is used, the flame should not strike the outside of the kettle. Neither the kettle nor the fat should be allowed to overheat when not in use as the excessive heat injures the fat. Fat should be strained at least once a day through four or five thicknesses of cheese-cloth. In all frying work kettles and other frying equipment must be cleaned thoroughly at regular intervals. If a kettle is not cleaned the fat will decompose quickly. Fresh fat placed in a dirty kettle will become dark in color and strong in odor much more rapidly than it will if it is placed in a thoroughly cleaned kettle.

In conclusion, it is my opinion that with intelligent usage of cooking fats and oils, based on the realization that consumption may have to be restricted by government action, possibly by rationing, we should be able to stretch our present stocks for a considerable period.

Protein Deficiency

For several decades it has been known that animals placed on a diet deficient in protein develop a hypoproteinemia . . . there is a "dynamic equilibrium between tissue protein and plasma protein." In a series of dogs [Washington University, St. Louis] maintained for three weeks on a protein-free diet, for example, there was a fall in total serum albumin, calculated from the fall in albumin concentration multiplied by the total blood volume. The practical therapy of dietary protein deficiency has been studied by numerous investigators. Weech, for example, found a definite regeneration (in the following order of efficacy) when beef serum, egg white, meat, liver or casein was added to canine deficiency diet. After three weeks' protein starvation, a supplementary diet of 5 gm. per kilogram daily of beef chuck led to an almost complete return to normal within ten days. This is equivalent to approximately 1 pound of beefsteak daily for the average human adult. In order to determine the maximum rapidity of such regeneration, the St. Louis surgeons allowed a group of dogs starved of protein for three weeks to eat raw lean horse meat *ad libitum* over a two weeks' period. The amount of meat voluntarily consumed by these dogs was surprisingly large, averaging 250 gm. per kilogram daily, each dog consuming each day approximately one-fourth of its total body weight. . . . This massive protein diet resulted in a complete regeneration of both concentration and total amount of serum albumin within one week.—*Editorial, J.A.M.A., 120: 455, 1942.*

Opportunities for Negro Women in the Field of Dietetics[1]

HELEN LOUISE PORTER, M.S.

THERE is some evidence that more Negro institutions are now seeking women with adequate training in dietetics for positions of responsibility in their food service departments. Although still young in the profession of dietetics, the Negro woman has made notable progress in the past few years. Before she is ready to accept a position as a dietitian, however, she must have adequate preparation in college and an additional year of training in a hospital.

As far as could be determined at the time this study was undertaken, no investigation had been made concerning the opportunities open to the young Negro woman for this training and the availability of positions upon the completion of such training.

This paper, therefore, concerns the results of a survey of the opportunities for preparatory training in colleges and universities for both Negro and white students and for hospital training in dietetics; and of the positions available for the Negro dietitian after completing her training.

The questionnaire method was used to secure most of the data. Questionnaires were sent to Negro colleges, universities, hospitals, and nursery schools, Y.W.C.A. and Y.M.C.A. branches, and social service centers, and to Negro dietitians. Letters were also sent to the American Dietetic Association, to the head dietitian at Freedmen's Hospital, Washington, D. C., and to graduates of the student dietitians' training course at Freedmen's Hospital.

OPPORTUNITIES FOR COLLEGE TRAINING

The student who wishes to apply for a dietetic internship in one of the hospitals approved by the American Dietetic Association must first meet the specific course requirements set up by the Association.

In order to determine the opportunities for preparatory academic training in Negro colleges and universities, questionnaires were sent to 50 such institutions offering a standard 4-year college course. Twenty-seven replies were received. Catalogues were studied to obtain information about the colleges from which replies were not received.

Five Negro institutions actually offer preparatory instruction sufficient to meet minimum requirements as set up by the American Dietetic Association. The remainder of the colleges and universities in question prepare students primarily for home economics teaching, and although they may offer some work in each course group noted under the above-mentioned minimum requirements, they do not offer courses with sufficient credit to meet the minimum number of hours required in each course group. Below are listed these requirements and the extent to which Negro institutions as a whole meet the standard required in each course group.

MINIMUM REQUIREMENTS		PER CENT OF INSTITUTIONS MEETING REQUIREMENTS
Course Group	Semester Hours	
Education	3–6	100.00
Social Sciences	9–12	89.18
Foods	6–8	72.97
Biology	6–12	62.16
Chemistry	12–17	54.05
Institution Management	6–12	45.94
Nutrition and Dietetics	6–8	37.83

According to the information given in the questionnaires returned, 99 students have qualified as to academic requirements for entrance into approved student dietitian training courses within the last 5 years in the 5 Negro institutions that offer a standard 4-year predietetic college course. Twenty of these 99 students have completed their training with a hospital training course.

The group of 20 dietitians mentioned here does not include those who have taken the commercial dietetic course at Tuskegee Institute, Alabama, which is discussed later. This course was not established according to the requirements of the American Dietetic Association.

[1] Based on a thesis completed May 1942 in partial fulfillment of the requirement for the master of science degree, State University of Iowa, Ames.

Another questionnaire was also sent to 56 universities, primarily for white students, that offer dietetic training, in an attempt to secure information concerning Negro women who receive academic training in these institutions. The list was composed principally of Land-Grant institutions supplemented by others that are known to have home economics curricula and to offer appropriate predietetic training.

Within the last 5 years, 9 Negro women have received predietetic training in 45 of these institutions, based on replies received from each institution. Six of the women completed hospital training after graduation from college, and another plans to enter a hospital course this year.

HOSPITAL AND COMMERCIAL TRAINING COURSES

Of the 60 hospitals that now offer courses approved by the American Dietetic Association, Freedmen's Hospital is the only one that offers a course available for Negroes. The course has been on the Association's list of approved hospital training courses for 10 years and can accommodate 4 persons each year.

The postgraduate training course for student dietitians given by the Dietary Department of Freedmen's Hospital consists of the following divisions: Administrative; Diet Therapy; Metabolic Ward; Teaching of Dietetics to Nurses; Pathological Laboratory Work; Food Clinics; Study Conferences; Field Trips; and Optional Duties.

The length of time required to complete the course is 12 months. The course is under the direction of the chief dietitian and her assistants, but toward the end of the course the student does much independent work. A certificate is given upon the completion of the course.

In order to secure specific data concerning the graduates of the Freedmen's Hospital dietetic course as to their progress in the profession, a questionnaire was prepared and sent to all graduates whose addresses were known. A list of 15 names was obtained and replies were received from 10 of the group. Six hold positions as dietitians in hospitals and receive an average salary of $1,585 per year. Three of the group are instructors in foods, nutrition, and dietetics, and their average yearly salary is $1,710. It must be realized, however, that maintenance is almost always provided for the dietitian, whereas only partial maintenance was furnished to an instructor in one college.

The majority of the graduate dietitians of the Negro race believe that more opportunities should be made available for Negro students. Some individuals feel that especially because of the expansion in the Army there should be provision for the approved training of larger numbers of the Negro race. Others reported having been placed on waiting lists because Freedmen's Hospital had filled its quota at the time they applied.

There are 2 Negro hospitals which offer independent training courses not approved by the American Dietetic Association at the present time, in each of which an average of 2 students per year receives training at present. From their course outlines, the activities described are quite similar to those in the Freedmen's Hospital course. It was found that the director of the course offered at Freedmen's Hospital, as well as those directing the unapproved courses, receives on the average 15 applications for entrance from students each year.

Tuskegee Institute, Alabama, offers a course for Negroes in Commercial Dietetics (organized in 1936), preparatory to work as chefs and in other capacities for commercial food services. It is understood that the course is offered primarily for men, although the description of the course is not explicit concerning this.

The course at Tuskegee is not set up according to the American Dietetic Association requirements, but is organized on a 4-year basis leading to the degree of bachelor of science. Such courses as: Catering, Advanced Quantity Food Preparation, Marketing, and Special Hotel Cookery are included. The 39 persons who have completed this course to date now hold positions as cafeteria managers, chefs in hotels, restaurants, hospitals, and on railroad and steamboat lines. The average salary received by this group is $1,500 per year.

Such a curriculum, although it is not set up according to the American Dietetic Association requirements, is an interesting phase of dietetics in which Negroes are becoming more active.

DIETARY DEPARTMENTS IN NEGRO HOSPITALS

Since an important outlet for the dietitian's service lies in the hospital dietary department, questionnaires were sent to 197 hospitals, owned by and operated exclusively for Negroes, to secure information concerning the dietary set-ups in the various institutions. Such information as the educational status of the person in direct supervision of the food service department, the salaries received, distribution of dietary duties, types of food service used, and the number of untrained employees in the department, was secured. It is impossible within the limits of this paper to discuss all these factors in full, but a few of the outstanding results are presented.

Of the 197 questionnaires sent, 64 were unanswered because the hospitals were no longer in existence. Forty-six replies were received, representing about 32 per cent of the hospitals in operation at the present time. The most outstanding Negro hospitals replied and consequently facts concerning these are included in the results.

Approximately 56 per cent of the hospitals from which replies were received are recognized by the American College of Surgeons. The American

Hospital Association gives its approval to 78 per cent or 36 of the hospitals in question.

Of the 46 hospitals replying, 11 reported that no "trained dietitians" are employed. The average number of trained dietitians employed in each of the remaining hospitals is two.

When asked concerning the employees in the department, excluding the dietitians, it was found that all the employees in 3 of the hospitals are trained in foods. There is an average of 9 untrained persons employed in the dietary departments of the remaining hospitals.

The average yearly cash salary of the trained staff dietitians employed is $1,253.80, the highest salary being $2,400. Room is furnished for 68 per cent of the dietitians, whereas all receive board, and over three-fourths are allowed professional laundry. Slightly more than half of the hospitals provide full maintenance (room, board, and professional laundry).

With regard to the educational qualifications of the staff dietitians employed, it was found that 77 per cent of the "trained dietitians" employed in Negro hospitals completed a hospital training course after graduation from college. The average salary of this group is $1,439 per year; the average salary of those who did *not* complete a training course is considerably less. It is evident that those who have completed a hospital training course are able to secure a much more satisfactory salary. Eleven of the Negro dietitians now employed are members of the American Dietetic Association.

OTHER INSTITUTIONAL FOOD SERVICE

In order to determine to what extent the Negro dietitian is employed in institutional food services outside the hospital, an attempt was made to secure information concerning food services in various social service centers, Y.W.C.A. and Y.M.C.A. organizations, and nursery schools. Questionnaires were sent to 170 such institutions; namely, approximately 98 social service centers and nursery schools, 22 branches of the Y.M.C.A. maintaining buildings, and 50 branches of the Y.W.C.A.

Since the majority of these institutions maintain no food service, information was obtained from only 25 institutions. However, some of the institutions that do not maintain a food service department mentioned that such a type of service is a greatly needed part of their community plans.

Three of the institutions from which replies were received (in this instance nursery schools) maintain no food service department as such, but the children are served lunches by "specially-employed" cooks. The replies did not specify the kind and amount of training these persons had received. In one other, the children are served lunches prepared under the direct supervision of the nursery school superintendent, a graduate nurse.

In the remaining 22 institutions there were only 4 who refer to the supervisor of the food service as a "dietitian." The institutions on the whole refer to the person in charge of food service as "food service director" or "cafeteria manager." Thirty-two per cent of the persons employed are graduates of a 4-year home economics course, 2 of this group hold master of science degrees, and 3 have completed a hospital training course. Two are members of the American Dietetic Association.

The average salary of the food service directors who are graduates of a 4-year home economics course is $1,502 per year, while that of the group who had not completed such training is $770 per year. This shows that although untrained persons are still being employed, the trained ones demand and receive a much more adequate salary.

The persons answering these questionnaires seem to feel that there are many opportunities for well-trained people in the various Negro institutions that maintain food service. They feel that training in institutional food management is very important for the proper supervision of any large food service plan.

SUMMARY

1. The Negro's opportunities for dietetic training in colleges and universities of her own race are limited. However, it is true that the training may be received in institutions primarily for white persons if desired. In view of this, opportunities for dietetic training for the Negro in colleges are probably quite adequate. Opportunities for hospital training after graduation from college, however, are definitely limited in that only one Negro hospital offers a training course approved by the American Dietetic Association. Four students may be admitted to this course each year, yet an average of 15 applications for entrance to this course is received annually. Six hospitals which do not offer a course at present are planning to make application for approval of training courses in the future.

2. The Negro's opportunities for service in the profession of dietetics seem to lie in the following fields: (a) dietary departments in hospitals—trained Negro dietitians are employed in approximately 76 per cent of the Negro hospitals included in this survey; (b) commercial organizations—trained persons are employed as dietitians and food service directors in social service centers, hotels, restaurants, Y.W.C.A., Y.M.C.A., college dining halls, and in nursery schools; (c) Negro high schools, colleges, and universities—dietitians are employed as teachers of foods, nutrition, and dietetics; and (d) Army service—trained Negro dietitians are already serving in one or two Army camps, and others have enlisted in the Waacs.

CONCLUSIONS

In conclusion, the opportunities for positions for the Negro dietitian are fairly adequate as indicated by a comparison of the number of Negro women who train for a dietetic career with those who are placed in positions after completion of training. One well-trained dietitian among the group whose names we were able to secure, is unemployed at present, but the salaries of those employed are satisfactory. However, many inadequately trained persons are still holding responsible positions in many Negro institutions.

The next step seems to be that of educating the heads of Negro hospitals and colleges concerning the importance of hiring trained women to manage the feeding of people in their institutions. When more institutions demand trained persons in their dietary departments, the incentive for Negro women to enter the profession will be greatly increased.

Military Status for Women

Hopes for the militarization of all women serving with the armed forces seem nearer to realization as the result of recent developments in Washington. . . . For another group, women dietitians and physiotherapists, there were indications that commissions would be forthcoming shortly as part of the general movement in Congressional circles to give military status to women who have enlisted in their country's service.

To include these two classifications of women, on request of the War Department, the House Military Committee postponed its hearing on the Edmiston bill, which in its original draft intended only to increase the pay of Army and Navy nurses according to their relative rank. . . . Among professional dietitians the movement to give their group military status was seen as an aid to greater efficiency in their duties. Without this recognition, their leaders agree, a dietitian works under the usual handicaps of a civilian among a personnel otherwise militarized.

While the American Dietetic Association campaigned two years ago for a bill that would grant them this status, the efforts of the group have recently been concentrated on securing an adequate number of recruits to meet the Army quota. Approximately 400 women dietitians are now serving in Army station hospitals, and 400 more are wanted. Those who are recruited for the Army must be drawn from civilian jobs in institutions, and the association's main emphasis recently has been to increase the enrollment of students in courses which would raise the total number of qualified women.—*Anne Petersen in the New York Times, Sunday, October 11.*

Civil Service Requirements for Dietitians Amended

Two amendments have been made to the Civil Service release of August 15, which gave qualifications for dietitians for government service, described on page 568 of this JOURNAL for September. The first amendment, dated August 17, states that there is no maximum age limit. The second amendment, dated September 18, states that applications will be accepted from students now completing an approved training course for dietitians (the original announcement ruled that, except in special cases, applicants would have to have completed a graduate training course); also that applicants may substitute "for each 6 months of graduate training specified above, one year of successful experience as a dietitian in a hospital of at least 200-bed capacity including (1) dietotherapy, (2) planning adequate menus, (3) supervision of employees in food preparation and service, (4) ordering food supplies and equipment, and (5) food cost control; provided that one year of such experience has been secured within the 10 years immediately preceding the date of application." The second amendment also reduces the requirements for vision.

Policies, Procedures and Standards of Public Institutions[1]

MAME TANNER PORTER, B.S., M.A.

Miss Porter, Nutritionist for the Department of Social Welfare, State of New York, for the past five years, has been loaned to the Office of War Nutrition Services for work with the Industrial Nutrition Program. A limited amount of Miss Porter's time is being retained by the Department of Social Welfare for the review of mass feeding plans which must be submitted to the state, and other emergencies which may arise. Previous to her appointment to the Department of Social Welfare, Miss Porter supervised the service of 1,861,500 meals a year in four cafeterias and five dining rooms at the Toronto General Hospital.

MANY things have happened since we last discussed the problems, policies, procedures and standards of our public institutions that make their solution and improvement of vital importance to all of us. Never has the opportunity of service been so great; never has the Association been confronted with such a heavy obligation. It is believed that many of the inmates of our institutions suffer from vitamin and other dietary deficiencies; and that disabilities as a result of nutritional shortages constitute one of our greatest economic losses.

We are now engaged in an all-out program to improve national nutrition by teaching the population what it needs to know about food, its selection, purchase and preparation. We have been given new dietary allowances for the well and told which of these vary markedly in disease; for instance, in febrile conditions there is an increased need for calories, thiamin and ascorbic acid; and in certain other diseases, especially those which interfere with digestion, a higher intake of some nutrients may be indicated.

Let us look at the new allowances. What are they? Will they raise our food costs? Translated into terms of food, they are supplied by the following (for adults):

(1) A pint or more of milk daily—for vitamin A, high quality protein, adequate calcium, and some of the vitamins of the B complex.

(2) Tomatoes, oranges, grapefruit, and/or their juices daily—for vitamin C, also other vitamins and minerals.

(3) A serving of green or leafy vegetables daily, occasionally yellow, lightly cooked and frequently raw—for vitamins A, B_1, G, some C, and minerals.

(4) Eggs (at least 4 to 5 weekly), lean meat, or sea-food—for protein, vitamins of the B complex, and iron.

(5) Dried beans, peas, soy beans and peanuts, several times a week—for vitamins B_1 and G, iron and protein.

(6) Potatoes at least once daily—for vitamins B_1, C, and iron.

(7) Whole grain cereal and whole grain or enriched flour and bread daily—for vitamins of the B complex and iron.

(8) Fruit, fresh and/or dried, 1 or 2 servings daily—for minerals, vitamins, etc.

Do the per capita food allowances of our institutions meet these standards? Do our daily and weekly menus contain the foods necessary to supply these nutrients regularly to the inmates? Are the preparation and cooking such as to conserve the essential nutrients to the greatest possible degree when the food reaches the patients and personnel? And finally, and this is most important, is the food consumed? Food left on the plate for whatever reason—because it has been poorly prepared, is cold and unattractive in appearance, or because the recipient has bad eating habits—does nothing to improve the nutrition of the one for whom the food was intended.

Every superintendent of a penal institution, in fact of any institution, knows that food is one of his

[1] As outlined by a committee of the Administration Section, American Dietetic Association, studying the policies and problems of public institutions, 1940–41.

TABLE 1

An adequate diet at low cost, for institutional use

FOODS	PER CAPITA PER WEEK	PER 100 PERSONS PER WEEK	PER 100 PERSONS PER 13 WEEKS	PRODUCTION	REMARKS
MILK	3½–5 qt.	350–500 qt.	1140–1625 gal.	When production is low substitute evaporated and/or dried milk.	Use as a beverage or in cooked foods. Use dried milk in bread formula, etc.
CHEESE American or cottage	2 oz.	12 lb.	156 lb.	At times when more milk is produced, cheese may be reduced because of defense needs.	Use American cheese for seasoning and flavoring foods. Cottage in salads, etc.
TOMATOES AND CITRUS FRUITS Grapefruit or juice, Lemons, Oranges, Tomatoes canned, Tomato juice	1–1¼ lb.	100–125 lb.	1300–1625 lb.	Produce sufficient to can 40–50 lb. per person, plus some for soups and seasoning.	Purchase citrus fruits and juice at season when cost is low.
FRUIT—FRESH OR CANNED Apples, Bananas, Berries, Cherries, Rhubarb, etc.	1–1½ lb.	100–150 lb.	1300–2000 lb.	Apples and rhubarb usually produced. Can and store surplus.	Use fresh if cheaper—1 lb. canned approximates ½ lb. fruit and ⅛ lb. sugar.
FRUIT—DRIED Apples, Peaches, Prunes, Raisins, etc.	4–6 oz.	25–40 lb.	325–500 lb.	Usually purchased.	Serve 3 to 6 times weekly. Use some in desserts, cookies, etc.
POTATOES—WHITE AND SWEET	3–4 lb.	5–7 bu.	65–90 bu.	Usually produced. Supplement with sweets.	Serve at least once daily. Baking and cooking in skins conserve minerals and vitamins.
LEAFY GREEN AND YELLOW VEGETABLES Beet tops, Chard, Chinese cabbage, Collards, Endive, Green beans, Green cabbage, Green peas, Hubbard squash, Kale, Lettuce, Pumpkin, Rutabagas, Spinach, Savoy cabbage, Turnip tops	2–2½ lb.	200–250 lb.	2600–3200 lb.	Produced, and all or part of year's supply canned. Extend available fresh supply by use of Kale, Savoy and Chinese cabbage, etc.	Serve 5 or more times weekly. Serve raw frequently. Do not overcook. Steam or cook in small amount of water. Do not add soda in cooking. Serve as soon as possible after cooking.
OTHER VEGETABLES—FRESH OR CANNED Beets, Cauliflower, Corn, Onions, Parsnips, Radishes, Sauerkraut, Summer squash, Turnips, etc.	2–2½ lb.	200–250 lb.	2600–3250 lb.	Produce all or large part. Can 3 to 4 months' supply to cover period when stored are not available.	Use daily and in soups, etc. Planting beets early and using tops for spring greens is a good plan.
LEGUMES Dried beans, Dried peas, Lentils, Lima beans, Peanuts, Peanut butter, Soy beans, etc.	4–5 oz.	25–30 lb.	325–400 lb.	May produce a part or all of a few items. Rest is purchased.	Use 2 to 3 times a week, baked, in soup, etc. Use soy bean flour, in part, in cookies, muffins, meat patties and loaves, etc. Use peanut butter in cookies, bread, etc.
EGGS	4–5 eggs	35–40 doz.	455–520 doz.	Produced. May need to supplement at times with fresh, storage or frozen.	Serve 3 to 4 times a week or more frequently. Use some in cooking.
MEAT AND FISH, POULTRY, ETC. Beef, Corned beef, Dried beef, Heart, Lamb or mutton, Liver, Kidney, Pork, Canned salmon, Cod fish, Fresh fish, Oysters, etc.	1½–2 lb.	150–200 lb.	2000–2600 lb.	Some pork, beef and poultry produced. Other meat is purchased. Cure hams and sides of pork. Make surplus beef into corned beef.	Use 5 to 6 times a week or more frequently if budget allows. 1 lb. canned salmon approximates 1½ lb. fresh meat or fish.

TABLE 1—*Concluded*

FOODS	PER CAPITA PER WEEK	PER 100 PERSONS PER WEEK	PER 100 PERSONS PER 13 WEEKS	PRODUCTION	REMARKS
FLOUR, BREADS AND CEREALS	Breads				
Enriched, rye, and whole wheat flours, Cornmeal, Cracked wheat, Hominy, Macaroni, Oatmeal, Rice, Wheat germ, etc.	2½–4 lb.	250–400 lb.	3250–5200 lb.	Flours and cereals usually purchased—1 lb. flour = 1½ lb. bread.	Use ½ or more as whole grain flours and breads; rest as enriched.
	Cereals				
	1½–2 lb.	150–200 lb.	2000–2600 lb.	If wheat is grown, grind for cereal and flour.	Use ½ or more of cereals as whole grain products. May add wheat germ to breads, muffins, cereals, etc.
BUTTER	6–7 oz.	40–45 lb.	520–585 lb.	Purchased or produced in part.	Serve butter 2 to 3 times daily.
OTHER FATS Bacon, Lard, Salad oil, etc.	7–9 oz.	45–55 lb.	585–700 lb.	Render pork fat and beef suet. Otherwise purchased.	Use in food preparation.
SUGARS AND SYRUPS Brown sugar, White sugar, Honey, Jam, Jelly, Molasses, etc.	1–1¼ lb.	100–125 lb.	1300–1625 lb.	Purchased.	Use a part as brown sugar, cane syrup or molasses.

biggest problems, as it affects morale. The greatest single factor in the morale of our Army, too, is food.

Wise planning of menus is always important but becomes increasingly so when the amount of money is limited. By means of skilful preparation, combination and seasoning, moderate-cost foods may be included so that enjoyment of meals is not lessened. Monotony must be avoided by cutting the food in different shapes and sizes (carrots may be cooked whole, quartered, or cut shoestring fashion, not always diced or sliced), by the addition of a piquant sauce, by different color and texture combinations, by a variety of inexpensive seasonings, and by the occasional use of the more expensive foods along with those less expensive. Having an old and familiar food served a new way appeals to most of us. Nothing must be wasted—bones, suet or celery tops. Planning the menus around color not only makes food more attractive, but better nutritionally. Foods of green, yellow, brown, orange, red, etc., have a higher nutritive value than do most white or refined foods.

Table 1 lists the amounts of foods which should be incorporated in an adequate low-cost diet for institutional use. Quantities for 100 persons per week and for 100 persons per 13 weeks are included. In planning budgets for the year, the latter figures are, of course, multiplied by 4.

In trying to change food habits or create an interest in a new food, we must remember that people do not necessarily act on the basis of knowledge but on the basis of feeling and emotion; nor do they react to what you say—rather to what you do, how you, yourself, react to the food in question. Do you drink milk, eat raw cabbage and whole grain cereals and breads? The moral is clear.

The well-planned menu provides for nutritional adequacy of the meals and controls the cost of the food. The use of standardized recipes helps to control the cost and keep food uniform in quality. Menus should be planned on a 4 to 6 weeks basis. Those institutions buying on a monthly basis may prefer the 4-weeks plan; those on a quarterly basis, the 6-weeks plan in which the menus are prepared twice a quarter or for 7 weeks the last part of the quarter. These skeleton menus must be rechecked each week for availability of food, adequacy, etc.

FOOD PREPARATION

While the menu controls and determines the daily and weekly food allowances, it is the degree of skill of the kitchen staff which in the final analysis determines the nutritive value of the diet at the time of consumption. Vitamins are destroyed by high temperature and are lost during the processes of chopping and cutting raw foods, and by sieving foods while hot, holding food hot for lengthy periods after cooking, or by adding soda when cooking, etc. Minerals and vitamins are lost when vegetables and fruits are peeled wastefully, and by dissolution into the water on long standing and during cooking. Potatoes, for instance, are valued for vitamin C, among other nutrients, but when cooked after peeling, then mashed and served from the steam table, a large part of the vitamin C is destroyed. Only when the potato is cooked in the skin, and perhaps then only if the time from completion of cooking to the service point is of short duration, can potatoes be considered a good source of vitamin C. Frequent stirring of foods while cooking introduces air and lowers the vitamin content through oxidation. Cooking in copper utensils, too, is destructive to vitamin C.

Keeping the diet adequate in vitamin C, therefore, is not easy when food must be prepared far in

advance and held hot for long periods because of the number to be fed and the area of service.

It may be necessary, especially for those whose food consumption is low, to fortify some foods in preparation. Flours or meals of high mineral and vitamin content, such as wheat germ, peanut or soy bean meal, can be added when preparing bread, muffins, cereals, cookies, puddings, meat loaves, etc. For breads, muffins and cookies, these products may displace one-fifth to one-third of the white flour; wheat germ may also be added to hot or ready-to-eat cereals, one or two tablespoons for each serving.

Serving good food at low or even moderate cost is a baffling problem today, especially in institutions handicapped by lack of adequate supervision, insufficient trained staff, or by the distance food must be carried before it is served. The roast beef, the baked potato, the cabbage may all have been delicious when placed in the waiting food trucks—not when they are served an hour later. In fact, time and temperature appear to be the crux of the situation in institutions. Every effort should be made to shorten the time from the completion of cooking to the service on tray or table.

FOOD SERVICE

Cafeteria service possesses certain advantages to the dietary department as well as to the consumer. It gives the dietitian more direct control over the food service, permits a more uniform and superior service at all times, and ensures better supervision over portion standardization and service so that there are fewer left-overs, less food waste, and, fully as important, a reduction of the serving time and the number of employees needed for the service of meals.

Hotter, better flavored and more attractive food can thus be served to the ambulatory patient and he has some choice in selecting his food. There are also certain therapeutic advantages since the patient will be likely to dress with more care for his meals, thereby making meal-time something of an event in the day.

The cafeteria, too, can serve as an incentive to appetite. Neat and clean attendants and a neatly arranged counter with its array of sparkling dishes and containers and hot, colorful food can be very stimulating to the appetite. If the food tastes good, in addition, it will undoubtedly be eaten. Food does not have to be expensive to look attractive or to taste good, but it does have to be well-cooked and properly seasoned. Every dietitian should adopt as a motto, "Never serve anything that you haven't first tasted!"

SELECTING AND TRAINING THE STAFF

In a 1940 report of the Administration Section, it was stated that the administrative dietitian of a large institution should meet the qualifications of membership in the American Dietetic Association. But she must do more than that. She must be a strong and able executive who can be depended upon to raise the standards in institutions. Thus she must have high food standards and the ability to maintain these at all times. She must be able to understand people, which implies a real interest in their welfare. She must be able to choose and direct her employees wisely. The administrator, to be successful, must be kindly, patient and understanding toward those who come to the institution for care. She must be able expertly to organize her department and her work and to direct and train her staff. Finally, and perhaps one of the most important of all her assets, she must be skilful in her dealings with the steward, the supervising farmer, and in fact, all of the institution staff. If her department is to be efficient, there must indeed be close cooperation with these other department heads.

The administration of the dietary department in public institutions presents a very different and more difficult problem than does that of the average non-public institution. Not only must the dietitian be able to handle a large staff of paid employees, but also inmate labor, which requires tact and ingenuity of a high order. Because work in the dietary department may have definite therapeutic value, the dietitian must be interested, tolerant, and possess the aptitude for handling those within her field of guidance and jurisdiction. She must be able to supervise adequately and skilfully the receipt and preparation of food, and its distribution and service at many points. Because most of these institutions have large farms, she needs to know something of the varieties of foods that can be satisfactorily grown, their storage, care, etc., and since many of the institutions do all their own canning, especially of vegetables, the dietitian should be familiar with large quantity canning, when and what to can, and be able to judge when it is more economical to use commercially canned products.

There should be certain basic qualifications for every job on the staff and the workers should be selected on the basis of these minimum standards with regard to education, experience and personal characteristics. In those states whose institutions are under civil service, selection will have to be made from the first three persons on the list. Such appointments are for three months, during which the employee is to be trained in the skilful performance of his duties. Here he should acquire appreciation of the importance of himself and his work in the efficient operation of the department and demonstrate his ability and interest in the work. The training of the new employee should never be left entirely to other employees. Everyone likes to think that his job and how he does it are important in the eyes of his superior, and his introduction to this work should serve to convince him of this. The

new employee, therefore, must be closely supervised; if at the end of his probationary period his work is unsatisfactory, he should be promptly dismissed.

Incidentally, the idea that anyone at all can work in a kitchen, or prepare and serve food, is so fallacious that it needs to be completely dispelled.

Industry trains all its employees, for satisfactory work means profit. Errors are costly, and the training of workers pays dividends. Basically, the administration of every institution wishes to render effective service but, unfortunately, for some reason or other, the formal training of employees for the efficient operation of the dietary department has not been adopted to any extent.

Today there is a serious shortage of personnel and more especially of trained people. Older men and women, slower and less capable, and less efficient inmate labor, are replacing many capable employees. In a 1940 survey of state institutions we found an average of one paid helper for every 486 patients, and one paid dining room employee to 271 patients, and an average of 52 patients working in kitchens and 74 in dining rooms. Any further increase, unless supervisory staff is also increased, appears, therefore, to be definitely inadvisable. The same study showed an average of one dietitian to every 1436 patients.

Dietary departments must be reorganized with everyone doing more work and carrying more responsibility. The dietitian should check her own duties. Can any one of these be delegated to others? Should we consider training dietitian aides? The nursing profession already is engaged in training 100,000 nurses' aides. Some states are taking advantage, too, of federal aid for the training of cooks and lunchroom managers.

What should the employee expect of the institution? In 1940–41 a committee of the Administration Section stated that less than 33 per cent of the institutions studied made a routine health examination of employees, about the same number did periodic Wassermanns, about 12 per cent did periodic typhoid inoculations, and an equal number employed no form of health check whatever.

Since health is paramount, health examinations for the new employee should be routine. If he comes to the institution with a good physical report, he should, in turn, be kept healthy, for his own sake and because it pays from the standpoint of the institution. A healthy employee turns out more and better work and is more vitally interested in his job and his fellow workers; moreover, he can be trained to do his work skilfully and will need less sick leave.

Dr. Sherman has told us that "better nutrition can add a ten per cent dividend of health, strength and happiness to the prime of life," by merely changing the quantitative proportions of the natural foods in the diet. The employee is entitled to an adequate, well-balanced diet; to a complete physical examination when he comes to the institution, followed by periodic checks. In institutions for the tubercular, he is entitled to protection by the most modern and up-to-date methods now known to be effective.

Under the impetus of national defense, we are witnessing a nutritional renascence, and while better nutrition for those in mental hospitals may not result in their cure and discharge from the hospital, we now have every reason to believe that along with a better program of work, rest and recreation, less supervision will be required, patients will be less destructive, more work will be accomplished, and the need of drugs may be lessened.

FOOD PRODUCTION

Institutions that maintain large farms commonly produce from 20 to 40, or even 60 per cent of their own food supply. Our economic problems have been multiplied by the war situation and our food supply has also been affected by the war abroad and by defense needs here at home.

Both as a patriotic duty (in order to make food available for our armed forces and our allies) and to carry out the aims of the nutrition program in state institutions, we need to produce more of the protective foods—milk, green and yellow vegetables, tomatoes, fruits, eggs and meat. A total war must be declared on waste of food. In the past all records and studies, by whatever method and for whatever reason, show reductions in total wastage. We need to use less of many items, and waste less of all. The elimination of waste has no liabilities. It reduces labor as well as cost of food. We must conserve not only foods that we produce, but also our imports.

Another matter to which dietitians should give thought and discuss with their superintendents is an exchange of food items between institutions within the state. One institution may not be able to produce a certain food of which another may have a surplus which is going to waste or not being utilized to the best advantage. Trading or exchanging produce helps both institutions and prevents waste of food.

We have maintained that close cooperation must exist between the supervising dietitian, the steward and the farmer. When the dietitian has her year's food budget prepared, all three should study every item, listing those foods that can be produced, the amounts to be canned and stored for the year's consumption, as well as those to be purchased.

Many seeds may be difficult to get. Canning may become increasingly expensive because of shortage of containers, labor, etc. Extending the year's supply of fresh green vegetables by a wider use of the varieties available will improve the diet at every point and reduce the amount to be canned or purchased. Leaves of vegetables have been called protective because of the completeness of their nutrients. While cabbage is widely used, many of the

other closely related vegetables are not. Savoy cabbage is not nearly so well known as it should be; it stands considerable frost and can be left out until late in the year and used green and fresh. Brussels sprouts should be more appreciated for their iron, and vitamin B and C content. Collards are known chiefly in our southern states because they withstand higher temperature. Chinese or celery cabbage provides a salad vegetable when lettuce is no longer available from the home garden; its mild flavor makes it suitable for salads and in addition it can be stored for a long time. Kohlrabi, in most states, is little used; the young and tender leaves may be used for greens, the root is a good source of iron, calcium and vitamin C.

Like collards, New Zealand spinach withstands high temperature and drought better than other varieties. A part of the spinach should be of this variety because after cutting a second crop grows, thereby saving seed and labor. Another advantage is ease of preparation. Beet and turnip tops, rich in minerals and vitamins, should be available in quantities for use as greens and the roots stored for winter use.

Kale is even hardier than Savoy cabbage; it is best when used after the first frost and is available well into the winter. Moreover, in most states, especially with a light protection, the plant will come up again in the early spring and provide a "lift" to your menus at a time when green vegetables are expensive.

Truly, the dietitian has a job to do, to see that everyone for whose food needs we are responsible receives an adequate diet and *consumes* it. In the Army, or out of it, if you can do this you are deserving of a major's epaulettes. You will have served!

Military Status for Dietitians

As this JOURNAL goes to press (November 30) Evelyn Anderson, chairman of the Legislative Committee, reports that HR 7633, "An act to increase the pay and allowances of the Army Nurse Corps, and for other purposes," now provides that "during the present war and for six months thereafter, there shall be included in the Medical Department of the Army such female dietetic and physical therapy personnel (exclusive of students and apprentices) as the Secretary of War may consider necessary, whose qualifications, duties, and assignments shall be in accordance with regulations to be prescribed by the Secretary, and who shall be appointed and, at his discretion be removed, by the Surgeon General, subject to the approval of the Secretary. Such personnel shall have relative rank and receive pay and allowances, including mileage and other travel allowances, as now or hereafter provided by law, for commissioned officers, without dependents, of the Regular Army in the third to the first pay periods, respectively. Persons appointed under the provisions of this section and their dependents shall be entitled to the same allowances and the same rights, privileges, benefits, and gratuities as members of the Army Nurse Corps and their dependents . . . one chief dietitian may be designated by the Secretary of War as Director of Dietitians . . . [with] the relative rank of major and receive the pay and allowances of the third pay period; all other . . chief dietitians . . . shall receive pay and allowances of the third pay period and have the relative rank of captain . . . head dieticians [sic] . . . shall receive the pay and allowances of the second day period and have the relative rank of first lieutenant; and . . . dietitians . . . shall receive pay and allowances of the first day period and have the relative rank of second lieutenant. Every person paid under the provisions of this Act shall receive an increase of 5 per centum of the base pay of her period for each three years of service up to thirty years, and during any period of service while on sea duty as such duty may be defined by the Secretary of War, or duty in any place beyond the continental limits of the United States or in Alaska, an increase in base pay of 10 per centum. . . . In computing service of female dietetic . . . personnel there shall be credited all active full-time service (except as a student or apprentice) subsequent to April 6, 1917, as a civilian employee of the War Department." Reported "out of committee" on November 17, it was read and passed by the House on that date. Slated to come before the Executive Committee of the Senate Military Affairs Committee on November 25, the bill in its present form, it appears, will be passed by the Senate.

Editorial

THE TWENTY-FIFTH ANNUAL MEETING

In the midst of the feverish activity of a large industrial city in a nation at war, members and friends of the American Dietetic Association convened in Detroit, October 19–22, to discuss the many problems confronting dietitians individually and as an Association. Any doubts of the need of such a meeting were quite dispelled when the total registration rose to over 1100, an attendance that taxed the facilities of the Detroit Statler. Incidentally, it might be mentioned here that the marked increase in membership (rapidly approaching 6000) and consequent expansion in scope of interest, mean that the Association has reached an awkward stage in its growth—too large for most hotels to meet its needs during the annual meeting, and too small for most convention halls or auditoriums.

The pungent phrases of Malcolm Bingay, noted columnist of the Detroit *Free Press* and speaker at the Welcoming Luncheon, sounded the key-note of the subsequent sessions and served to prick the bubble of complacency that all was well with us and our country. Said Mr. Bingay: "We talk one way and live another. . . . I am not impressed by the failure of democracy to function as yet. It is only 150 years old. We have not begun yet. The first 75 years of this greatest experiment ever known in the history of the human race was a series of compromises to get away from issues. Now we are still moving away from our problems, going westward—great treks from agricultural areas into industrial centers are one example. . . . For the first time we face the problem of beginning to be a homogeneous people. We are just beginning to 'jell.' . . . We are just beginning to find out that we have problems to face that for a century we have been walking away from."

In his concluding remarks the speaker said: "After the war, democracy must begin at home. It is up to us to revitalize our home life, state life, and national life that, by the power of precept, the people of the world will want to 'go democratic.' And until that time, it will be up to us to see that this unique thing, democracy, will so cling to our ideals that we will have a country which in all its mighty power and good, will lead the world. Our big task is to build our foundations so solid and so lasting that when the hour of trial comes again we will not have to go through this Gethsemane which now faces us. . . . All that storm and fury is on the surface, and way down underneath the great solemn tides are moving on their way, regardless of the movement of time."

In keeping with these forceful comments, there was far less tendency this year for the officers and members of the Association to "walk away" from their problems. There was far less evidence of a creaky and cumbersome, and shall we say, conventionally democratic approach to our problems so often typified by a disunity of action that leads nowhere.

In this Association, as elsewhere, there appears to be a growing sentiment toward strong leadership and prompt action which must replace an at times vacillating policy that one moment disclaims the need, for example, of military status for the Army dietitian, or of an accelerated training program for dietitians, and the next moment is for these measures. This was not the spirit of the dietitians who founded the Association in 1917. Now, as in 1917, is the time for quick thinking and prompt action. Questionnaires concerned with profitless projects, never brought to purposeful conclusions, should be out for the duration. Practice instead of patter, and service instead of sermonizing, must take precedence in an Association whose members are beset by shortages of labor and equipment, and problems of rationing and food substitutions.

Pertinent problems of the moment were brought to the fore in the address of the President, Nelda Ross, at the Business Meeting: "Someone has said that the dietitian in the civilian hospital is now, or will be, one of the unsung heroines of this war. With no new and becoming uniform to bolster her morale, she faces the problem of rationed food supplies, uncertain deliveries, the necessity of priorities for equipment, and an increasingly difficult labor problem. No other department has a staff so difficult to maintain or replace. Many employees trained by the dietitian are transferred to other departments, but what dietitian ever had a waiting list of nurse's aides wanting to be pantry maids, or housekeeping porters begging to be transferred to dishwashing positions? The dietitian has a difficult job when the entire institution is faced with a shortage of pro-

fessional services and employee labor and all are under constant pressure of work to be done.[1]

"In considering our other members, have school lunchroom managers and college food service directors utilized all their opportunities for education of their customers in good eating habits? Have college instructors impressed their students with the importance of applying nutritional principles to themselves? Have nutritionists who have had little or no training or experience in quantity feeding been able to handle the problem of school lunches or mass feeding to their own satisfaction? These are questions which only the individuals in the various fields can answer, but perhaps the answers may have a bearing on the delayed public awakening to the importance of nutrition.

"There are some questions we might ask of our Association as a whole. Have we been too shy of publicity, thought it unprofessional or assumed that if we are doing our work well, there was no need to tell anyone about it? Dietitians in all fields have been alert to the needs of their positions, but not to the wisdom of sharing the results of their experience with others. As an Association, too, we have veered away from publicity; we must realize the importance of our Association activities and inaugurate a more positive publicity program which is educational in nature. The attitude, at times expressed as, 'it makes no difference who gets the credit if the work is accomplished,' is not very realistic. For if the American Dietetic Association fails to receive due recognition as a result of the participation of our members in the nutrition program, there will be a negative reaction evidenced by the query—What is the American Dietetic Association doing in the war program?"

[1]*Editor's Note:* It is of interest here that in discussions at certain of the small group meetings at the convention of the American Dietetic Association, it was brought out that canteen aides have been of very practical assistance to dietitians, particularly in cafeteria services in hospitals and school lunchrooms.

Current Comment

THE DIETITIAN AND THE SALVAGE PROGRAM[1]

HELEN ROBERTSON[2]

It is my purpose today to tell you some of the whys of the salvage program—why it is necessary and why it must continue until the war is won and victory is ours, and to ask your further cooperation, your continued interest in it.

Salvaging Tin Cans. This war has produced nothing stranger than the paradox which has overtaken the humble tin can. America has always been the world's greatest user of tin. In 1941 we used approximately 100,000 gross tons. Yet we produce only 44 tons, and that mostly in Alaska. The Malayan Peninsula was our chief source of supply, and that was cut off, of course, by the war in the Pacific. In spite of the research that has been done to find a substitute for tin, none has been discovered. So to the formerly discarded used can we now turn, for as much tin as it will supply. The tin can, as you probably know, is really only 1.37 per cent tin. But even that small amount is important in the war effort. It is needed, and needed badly, for the bearings and bushings of cannon mouths, for airplane motors, for canisters of gas masks, for electric machinery, for communication equipment, and especially for containers transporting concentrated food to our troops in all parts of the world. Tin is also used in the preparation of tin oxide which is important in the treatment of wounds. It is used for tubes containing essential medical supplies.

Tin is a peculiar metal, we are told. It isn't needed in great quantities. But its peculiar qualities make it particularly adaptable to the uses to which it is put—chiefly as an alloy or a coating of other metals.

In the detinning processes 100 per cent of the metals of the tin can is recovered. They yield a pure metallic tin and steel plate. Steel, we are told, never dies. It can be used over and over again. Now the steel that goes into the manufacture of guns, tanks, and planes is 50 per cent virgin ore and 50 per cent scrap. It is understandable, then, that the steel from the tin can, the steel from the pieces of equipment that you have and may still find stored in your dietary departments, and that you have already or shortly will turn into the war effort, is needed.

There has been some confusion in the saving and collecting of tin cans. Collections were made in some of the states, while others were told not to keep them. The program has now been stabilized and we are asked in all parts of the country to save tin cans, to wash them thoroughly, dry them, open them top and bottom, and flatten and store them until called for by local collectors. Areas within a radius of 100 miles of Los Angeles, Houston, Dallas, Kansas City, Kansas, and Kansas City, Missouri, are exceptions to this rule. People are asked to wash the cans, dry them, but neither to open nor flatten them. These cans will be used in the collection of copper. They will be shredded and thrown into streams where the water has a high copper content.

[1] Presented before the American Dietetic Association, Detroit, October 21, 1942.

[2] Foods editor, Cleveland *Plain Dealer*, and member of the Women's Unit, Conservation Division, WPB.

The tin attracts the copper, and thus the latter is obtained.

New detinning plants are being built in strategic areas as quickly as possible, and the stores of tin cans that have been collected will soon be recovered and used. We must not become impatient if these cans accumulate in our kitchens before being collected. Let us think, rather, of this supply as potential war material and keep it, letting it grow until needed. If the war should end suddenly we would all, I am sure, be delighted to celebrate by throwing out that supply. Some precautions must be taken against infestation in the building up of such a supply, however.

General Salvage. With regard to metal salvage, the discarding of old equipment, let us keep these facts in mind. Let us remember that the United States is forging the largest and most powerful military force in its history and that this force must be furnished with the best equipment possible, which you and I can help to supply.

As we have said, steel that is used in the manufacture of guns, tanks and planes, is 50 per cent scrap. Through our newspapers, there has been a concentrated drive for scrap in the past weeks, which has brought tremendous returns. It has helped to build a pile that will keep the steel furnaces going through the winter. But that is not enough. We must not slacken our efforts to provide a continuous flow of scrap metals into the furnaces which must be kept going.

Then there is this matter of kitchen grease which most of you have been selling to the renderers. It does not matter whether you sell it or give it, but you must not waste it. As dietitians, you can help materially in this program, for the supply of grease which you can collect is sizable. It is needed for the production of glycerine, and glycerine in turn means explosives, signal rockets, recoil mechanisms, demolition charges, propellants, gun powder.

The war in the Far East cut off our shipments of fats and oils, which means that every ounce, every drop of fat that we use must do double duty, and sometimes triple. It must be used until the last bit of good is taken from it, in order to conserve our fresh supply. And when no longer usable, it must be turned in for the manufacture of glycerine.

The uses of glycerine in the Army are many. It is used, as we have said, in the manufacture of explosives. On warships it is needed for compasses, hydraulic equipment, pumps, and steering gears. It is used as protective coating for ships, tanks, and turrets, and as a base chemical in the manufacture of many other products, including medicinal preparations. Two pounds of waste kitchen fats contain enough glycerine to fire five anti-tank gun shells. One pound of kitchen fat will yield glycerine for one-half pound of dynamite.

From the West Coast to the East, from the North to the South, women are being organized by block and by farm to see that a steady stream of these valuable materials comes from the home and into the war effort where they are needed. The cooperation of national organizations is also being sought. As dietitians, and as members of the American Dietetic Association, you are asked to assist in the movement, to enlist the interest and efforts of your associates, that there may be a better understanding of the program and that practical help in the salvaging of essential materials may be forthcoming from home and institution.

ASCORBIC ACID REQUIREMENTS AS DETERMINED BY BLOOD AND URINARY LEVELS[1]

HELEN J. PURINTON, M.S., AND CECILIA SCHUCK, PH.D.[2]

The necessity for obtaining further data concerning human requirements for the various nutrients is recognized by nutrition experts as a pressing problem of a wartime "better health through better nutrition" program. This necessity has been emphasized in the recommendations of the National Nutrition Conference for Defense with regard to "vigorous and continuous research . . . of the nutritional needs of individuals." Recently, Kruse[3], Kastlin[4], and Lepkovsky[5] have brought to the fore our need for further investigation of the ascorbic acid requirements of the various age groups. Our lack of knowledge as to optimal requirements for this nutrient has been due mainly to the controversy among the several laboratories as to the method of administering the test dose. Some have used certain foods rich in vitamin C; others, the pure ascorbic acid administered orally; and still others, intravenous injections of ascorbic acid. The nutritional status and requirements of the individuals being studied have been determined by their response to these test doses.

One of the problems to be faced in this type of investigation is that of determining the superiority of one means of administering the vitamin over that of another. Whereas it is true that by means of the oral administration technique we employ a method akin to that by which we normally obtain our vitamin C, this method is subject to errors as a result of physiological differences in the rate of absorption in individuals.

[1] Read before the American Dietetic Association, Detroit, October 22, 1942.

[2] Department of Foods and Nutrition, Purdue University, Lafayette, Indiana.

[3] Kruse, H. D.: A concept of deficiency states; The gingival manifestations of avitaminosis C. Milbank Memorial Fund Quart. July, 1942.

[4] Kastlin, G. J. *et al.:* Am. J. Clin. Path. December 1940.

[5] Lepkovsky, S.: Ann. Rev. Biochem. 1940.

By injecting the test dose we avoid any errors introduced by individual differences. It is also possible to arrive at definite time intervals following the administration of the vitamin when blood and urinary levels can be determined which may be assumed to represent comparable states for all subjects with respect to ascorbic acid utilization. We know, too, that the blood stream has a definite speed with which it carries this test dose to the tissues and brings it to the kidneys for disposal. The only physiological differences which might interfere with the measure of the response to an injected test dose would be due to certain kidney dysfunctions. Since such investigations deal only with apparently normal individuals, it could be assumed that any kidney disorders would be ruled out by the attending physician.

Very few investigators have made use of a controlled diet for maintaining a definite fasting or normal level of ascorbic acid in the body tissues. The recent ingestion of a food rich in vitamin C would, of course, invalidate the subject's response to a test dose. The subject, therefore, is placed on a carefully planned, weighed diet of a definite but low vitamin C content. Since the body has a daily need for vitamin C and no facilities for its storage, 24 hours upon this diet brings the subject to what is termed a normal, fasting level of ascorbic acid content of blood and urine. These levels give a picture of the subject's nutritional status and serve as a check upon the knowledge of past dietary sources of vitamin C. After determining these levels, the test dose is administered by intravenous injection. The response to the dose is measured at specified intervals, while the subject remains upon the controlled diet. From these measurements it is possible to determine the quantity of vitamin C retained by the individual over a 24-hour period. Good evidence has been produced by Ludden[6] that this figure may be regarded as a minimum requirement figure.

Of the 20 individuals (college students and faculty women) investigated so far by us, only 8 have shown both good fasting blood and urinary levels and the expected response to the test dose. This is in agreement with the statement that, in general, only 40 per cent of the population receives a diet satisfactory in vitamin C content. The average requirement or maintenance figure for these individuals has been found to be greater than the figures commonly given in the literature. One of the purposes of the investigation now in progress in our laboratory is to determine just how much ascorbic acid the body will adjust itself to use if an excess intake is supplied, that is, an amount believed to be in excess of the minimum requirements which have been determined by administering varying quantities until the vitamin is excreted in the urine.

[6] Ludden, J. B., and Wright, I.: Arch. Int. Med. 65: 151, 1940.

As an absolute or accurate requirement figure for a particular individual, a single measurement of this type would not be valid, but by using several individuals of the same age group we hope to obtain average figures which will more nearly approximate optimal requirements than those already suggested in the literature.

SAVING TIME AND ENERGY IN FOOD PRODUCTION AND SERVICE[1]

GERTRUDE R. BINNS[2]

The judicious use of employees' time and the perfection of methods and techniques in using both human and machine labor are always a "must" in the smooth operation of an institution food unit. And I believe I have never felt so conscious of that truth as I do in administering the mess for one of our United States Naval Training Schools.

With shocking suddenness it has become necessary to change a kitchen's activities, based on the premise of food service offering maximum nutritional value plus appetite appeal, for one of like merit and in addition a greatly expedited performance. The government needs ready-established and ready-organized plants in which to school its armed forces. There is neither time, labor, nor materials to build especially designed food service units. The problem for those of us who have turned our plants over to the military schools is, roughly, to serve three times as many men in one-half the time that the prewar students enjoyed.

To illustrate, I will explain what has happened at Burton and Judson Courts at The University of Chicago. The changes concern chiefly the use of equipment and layout, the routing of traffic, the manner of service, and the budgeting of time and activities. We have two large dining rooms, each seating 185 students, which with their respective serving counters, are located on either side of the kitchen and dishwashing room.

The beauty of arrangment and the intimate conversational groupings are disregarded in our dining rooms now, and the furniture is placed in mess-hall fashion so that an additional 100 persons may be seated. We arrange the tables in three parallel rows. At the end of each of these long tables are tray stands for collecting soiled dishes and silver. Others are placed along one wall of the dining room, from which refills of butter, bread and other cold foods may be obtained. Routing of the traffic lines of sailors and waiters is worked out to avoid crossing. The butler's pantries between each dining room and the central dishwashing room have been converted

[1] Read before the American Dietetic Association, Detroit, October 20, 1942.

[2] Supervisor, College Residence Halls and Commons, University of Chicago.

into dishrooms. In these pantries the cupboards for storing occasional pieces of china, glass and silver have been torn out. The result is an amazingly spacious dishroom which by its very proportions seems to encourage orderly handling of the dishes. Portable racks are available for transporting dishes to and from the dining room and kitchen.

In the serving rooms we streamlined the serving counter and steam-tables by removing the swing tops over the hot pans, and the glass display counters. There is no time to stand and contemplate the eye appeal of the food which makes up the sailors' mess. In each serving room we staff the counters with two complete groups of serving girls so that a sailor need not hesitate a second to pick up his plate. The rate of service proceeds as fast as the men can walk past the counter and pick up their plates of hot food and desserts.

The shortness of the counters in our serving rooms makes it inadvisable to use the compartment trays which have replaced dishes in many naval training schools. We haven't space in our serving rooms for the number of girls necessary to serve the entire menu on one tray. Therefore we selected an open-stock, inexpensive china pattern with the minimum number of pieces; namely, for each man, one cup, one plate, one sauce dish, one cereal bowl and one fruit juice glass (a small plate is substituted for the sauce dish when pie or some similar dessert is served). Each man is given three pieces of flat silver and a soup spoon is added when soup is served. These are wrapped in a paper napkin and stacked 50 to a tray and placed at the end of the counter. This minimum per capita allowance of china and silver makes a dishwashing load which is considerably less heavy than it was for the more elaborate prewar service to our 385 students.

In order to conform to the closely-timed schedule of the trainees it is necessary that the entire school (1000 men) be served in 30 minutes. Each of our dining rooms must be filled twice, which means that each group of 500 men passes the counter in ten minutes. To accomplish this, the dessert and the plate with meat and potatoes are handed to the men at the counter. The rest of the menu is placed on the table—the bread on plates, the butter in bowls, the milk and coffee in pitchers, the vegetables and salad in bowls. Each sailor, when he has finished eating, carries his own dishes and silver to the soiled dish stands, from which they are taken to the dishroom by our student waiters. A petty officer in each dining room seats the sailors, maintains order, and directs the columns of incoming and outgoing men.

Careful budgeting of the routine production activities is also a factor which contributes to the ease of handling so large a group of men in limited space. The menus are planned with due consideration of the available equipment. For instance, we cannot allow the ovens to stand idle any time during the day, because peak periods overtax their capacity at mealtime. The steamers and the steam kettles must also be set for continuous use; no periods of inactivity should be counterbalanced by peaks too great to accommodate the volume. The slicing machine must be used not only to slice the meat at mealtime, but throughout the preparation period to slice tomatoes or oranges for the salad, or to shred cabbage.

Formerly we laid the strips of bacon in drip pans which were then placed in the ovens. From the standpoint of pans, oven space and time this is an impossible undertaking for our triple-sized group. We have found the end product is just as satisfactory if the half-pound packages are thrown on the hot fry top of the stove. In almost a minute the heat has loosened the strips, then a shove or two with the broad spatula and a flop to the other side and they are done. Two women can fry the 200 lb. of bacon for the entire mess in just about one hour. Breakfast sausages are parboiled the night before, so that the frying time the following morning is reduced about one-half. Much of the breakfast preparation is done during the lull in the afternoon or just following supper. Eggs are broken into dishes to fry the next morning, beans are put into the oven to bake during the night, fruit is unwrapped and washed, the dry cereal is dished and stacked on trays. Peak periods during the meal service are further counterbalanced during the day by all-out efforts at cleaning and polishing. Activities have become more despecialized for each employee—the pan washer no longer just washes pans, she also cuts celery, perhaps, or wraps silver, or replenishes the counter during service; counter girls not only serve the food but also make salad dressing, cut pies, or roll hamburgers. In addition, all contribute to the routine cleaning.

Butchering and baking are done in the University central commissary, but the rest of the food service is carried on in our own kitchen with the following items of large equipment: one 2-section fry type stove, equipped with two heavy-duty grill top burners; one deep-fat fryer; two 3-compartment steamers; three jacketed steam kettles, of 60-gal., 30-gal., and 25-gal. capacity, respectively; two gas-electric toasters; two 12-slice electric toasters; one 2-deck electric oven; two gas roast ovens; one 4-deck gas bake oven; one 80-qt. mixing machine; one chopping bowl with attachments for shredding, slicing and grinding; one small electric meat slicer; and one potato peeler, 15-lb. capacity.

This equipment is limited, not because we have no use for more, but because we have no available space for more. We employ 48 full-time workers who are scheduled in shifts covering the operations from 5:30 a.m. to 8:30 p.m. Nine students are needed in

each of the two dining rooms during the meal service for replenishing food and carrying out the soiled dishes. This represents about 465 labor-hours per day.

I do not feel that we are conserving all the time at our disposal, or that we are obtaining the maximum productivity either from our employees or our equipment. On the contrary, I am aware of the vast number of other economies that could be made if one were able to recognize them. And I can merely illustrate my point by these homely examples of the changes which have been made in a peacetime institution which is now geared to a wartime tempo.

EMERGENCY ECONOMIES[1]

WINIFRED ELIASON[2]

With manpower shortages caused by men entering the armed forces and war production industries, we in the food business are having more problems daily than ever before. Food rationing is a problem which can be met by inventiveness and substitutes, but there is no substitute for skill in our workers and we must employ every conceivable means to get food to the public with the least inconvenience to all concerned.

Up to this time we have tried to meet the situation with food and business as usual, but I am sure that within the next few months many of us will be sacrificing previous standards, particularly of service, which we would not think of doing except in a great emergency.

There are several things which may be done in a cafeteria to save labor. Those of us who have wrapped silver may discontinue the practice, allowing each guest to pick up his napkin and silver separately. At the bread counter, one Canadian restaurant, Muirhead's in Toronto, has built a rack for bread, with slots for each kind, which faces the cafeteria line and may be filled easily, eliminating the necessity for serving each separate portion. At the steam table, Alice Easton suggests that we have two pans of the most popular entrée to do away with frequent refilling. The water counter could be serviced by turning the spigots around to face the customer and letting him serve himself. Most of these steps, however, tend to slow the service, and in a cafeteria line where speed is essential, they would be only drastic emergency economies. By the use of carts in the dining room several bus-boys could be eliminated, but here space is a factor. Service restaurants may be forced to devise a type of buffet service to save waitresses.

In our food production there are several ways in which we can save labor. The first step is, of course, simplification of the menu. Fewer items in greater quantities require less time to prepare. We may be forced to drop all frills and all extra production such as fancy breads, muffins, and hand-made rolls, and rely instead on commercially baked bread.

In our bakeshop we have always planned our desserts as economically as possible from the labor standpoint, using basic recipes for several different items. For instance, we make a large quantity of cream filling from which we make prune cream pie, orange cream pudding, custard sauce for pudding—all by adding milk and extra flavoring, or chocolate pudding by adding melted chocolate while the filling is hot. We also have a plain cake, split and filled with cream filling and fruit, and topped with whipped cream. All of these may appear on our counter at one time and apparently no one notices the similarity.

When we make custard filling for pies we make an additional amount for cup custard and pour some into long pans with bread, raisins and rice, caramelized sugar, cornflakes or grapenuts, using several of these dishes on the same menu.

On one day our bakeshop order calls for butterscotch filling for pies, with enough additional filling to make Butterscotch Layer Angel Food Cake the next day, or Butterscotch Date Nut Pudding or Butterscotch Puffs. When we have Lemon Meringue Pie we plan to have Lemon Sponge Roll or Lemon Velvet Pudding the next day.

Not long ago we had several new vegetable cooks and we found that they couldn't keep the counters filled. They were always out of one or two vegetables and confusion resulted. By checking with them we found they were cooking too little at one time in order to avoid overproduction. We accordingly changed our production orders, allowing them to cook more than one vegetable at one time. As a result, all is now serene and with no extra help.

While in Chicago at the Restaurant Emergency Conference I heard several reports of what other restaurants are doing to meet the labor shortages and am convinced that we who have done nothing drastic yet, will be forced to retrench if labor shortages increase. The director of the Blue Boar Cafeterias reported that they were simplifying their menus, having reduced their salads one-third. They also are ready for meat shortages, whether rationing arrives or not, by having counter pans painted with the words "Victory Pan" and leaving two or more of these empty on the counter.

Of course, with the lack of efficiency and skill in our present employees there is almost no hope of cutting down the number of employees in our production departments. We have been forced to carry extra workers in each department where the turnover has been great in order to produce the same menu.

Here in Detroit we are at the point of taking anyone and everyone and putting them to work. Gone

[1] Read before the American Dietetic Association, Detroit, October 21, 1942.

[2] Greenfield's Cafeteria, Detroit.

are the days when we required only thin women for the salad department or small girls for the floor and tall ones for the counter. Gone are the days when we looked for personality and good looking faces. Now we hire help almost regardless of age or infirmities. William Power in his talk "Step Out and Sell" said, "while the body is still warm it is a prospect for a job." We have a supply man who has a stiff knee, and several men over 65 years of age working in the bakeshop and dishwashing departments who are very satisfactory. I recently heard a story of a restaurant man who took a new employee to the kitchen to explain his job. Said he, "Now, my friend, your job is to sit on this stool and tell that fellow over there when he has finished filling those jelly dishes." "Well, that's a funny job, what's the matter with him that he doesn't know when he's finished?" The restaurateur replied, "He's blind!" We may yet reach that point.

As to ways of saving food, much can be saved by eliminating oversized portions. By simplifying the menu, overproduction may be reduced; and especially in a cafeteria we may avoid the confusion of serving too much variety which results in the complaint of many, "I always eat too much." We have done a few things recently to save food directly. For example, we set the thermostats of our deep-fat fryers so that they cannot be turned higher than 375°, to prevent burning of grease. Also, one of our production managers found that in trimming lamb too much meat was being left on the bone, so we now cook and scrape the bones, making lamb hash out of the salvaged meat. When sugar rationing arrived we found that the syrups from some canned fruits were being poured into the sink and that by boiling these down we could use them as sweetening in our pies.

Meat substitutes and extenders will be necessary shortly and we have borrowed every idea we can find. Some of these ideas which we have gathered from cook books, magazines and other sources include: Creamed Eggs on Toast; Scrambled Egg and New Peas; Scrambled Eggs and Fresh Mushrooms; Egg Foo Yong with Rice; Egg Cutlet with Tomato Sauce; Eggs á la King on Holland Rusk or Toast; Creamed Eggs and Asparagus en Casserole; Eggs and Vegetables au Gratin en Casserole; Stuffed Eggs en Casserole; Fresh Tomato, Fresh Mushroom, Corn and Cheese, Cheese, Asparagus, Spanish, Fresh Vegetable, and Jelly Omelet; Carrot Almond Ring with Currant Jelly; Cottage Cheese Croquette; Fried Cheese Sandwich; Cheese and Noodle Loaf with Mushroom Sauce; Cheese and Corn Loaf with Tomato Sauce; Spinach and Eggs with Rarebit Sauce; Grilled Tomatoes and Fresh Asparagus with Cheese Sauce; Welsh Rarebit on Holland Rusk; Cheese and Rice Croquette with Tomato Sauce; Cheese Fondue; Grilled Cheese and Tomato Sandwich; Grilled Cheese and Asparagus Sandwich; Mexican Cheese Scramble; Chinese Omelet; Spanish Fondue; Vegetable Chop Suey; Vegetable Soufflé; Walnut Rice Croquette with Currant Jelly; Walnut Cheese Loaf with Tomato Sauce; Macaroni Stuffed Peppers; Spaghetti Supreme with Mushroom Sauce; Spaghetti Milanese en Casserole; Noodles and Mushrooms en Casserole; Vegetable Con Carne; Vegetable Pie with Parsley Biscuit Crust; Spinach Soufflé with Mushroom Sauce; Fried Hominy Grits with Syrup; Fried Corn Meal Mush with Syrup; Corn Fritters or Apple Fritters with Maple Syrup; and Fresh Asparagus on Toast with Cheese Sauce.

Nutrition and the War

NUTRITION—NOW AND LATER[1]

L. B. PETT, PH.D., M.D.[2]

Almost one year ago the Canadian Government established the Nutrition Services, to deal with four general aspects of this broad subject of nutrition: namely, nutritional research, nutrition in industry, educating the public about foods, and advice on nutrition for other government departments.

Nutritional Research. A great deal of research in nutrition is going on in Canada. Partly under the stress of war, much of Canadian investigational work is concerned with the preservation of fruits and vegetables, the losses of important nutrients during cooking, and on nutrition surveys of sections of the population. Some work is being done on requirements and on assessing nutritional status.

I think that these estimations and analyses are of the greatest importance. It is equally important to collect and tabulate the results. Curiously enough, in spite of many efforts at tabulating food analyses there is a great lack of practical, usable figures in modern terms. Nutrition Services in Ottawa has a graduate dietitian engaged in compiling all such figures of Canadian origin. This work must take into account methods of determination, variety of plant, storage, processing and cooking losses, etc.

What of the future? We must realize that these analyses are the very foundation on which we must build. In a general way our aim for the future might be expressed as providing the public with sufficient information to make it difficult for anyone *not* to get an adequate diet. To do this we must first of all see that in the future only those crops are grown that give the greatest food value. Some kinds of tomatoes, for example, give twice as much vitamin A and C as others. There is need of extensive investigations, by the newer methods, of all our agricultural produce. No longer should color, size, shape or

[1] Read before the American Dietetic Association, Detroit, October 22, 1942.

[2] Director of Nutrition Services, Department of Pensions and National Health, Ottawa, Canada.

weight be the sole guide to grade or quality. The nutritive value should also be counted.

The processing of foods, whether home or commercial, so as to retain the maximum food value, has already been studied to a certain extent, but we are a long way from knowing all the answers. And that means that we are still far from being able to advise the public, or to control the public's eating, so that an adequate diet is assured to all. I think that the food industries who have already done something in this line have a wonderful opportunity here to aid the public by adding to our knowledge.

Further, when the food, processed or fresh, gets into the home there are losses which we still do not control. Just as important, and perhaps more so, are the losses of nutrients in restaurant cooking, or any large scale cooking. The evidence so far suggests that these losses in our commercial eating places may be staggering.

For the future of nutrition research, therefore, I hope that we will have a much firmer foundation for our work by the possession of good analytical tables.

There are other matters that call for attention, but they are so technical that I shall refer to them only briefly. As a medical man, I hope that improved methods of assessing nutritional status will be available which will be simple and reliable enough for uniform acceptance. In this way we shall be able to judge whether special treatment is indicated, and check our results. Let us not become too satisfied until we have a firmer experimental basis for all our figures for human requirements.

Nutrition in Industry. The subject of nutrition in industry has occupied most of the time of my division in the year we have been operating. It must be emphasized that peak production cannot be attained nor maintained unless proper attention is paid to diet. It has been said that 90 per cent of the absenteeism from industry is preventable, some of which could be avoided by eating the right foods.

The food facilities of Canadian war industries are being surveyed. Already we have inspected the facilities for nearly half of all war workers in Canada, and the work is going on rapidly. As we inspect, recommendations for improvement are being made, and I am glad to say that we have some authority to require changes where necessary.

Perhaps you would be interested in some of our findings on Canadian war industries. The picture is not yet complete, but, as I said, we are near the half-way mark. Only 27 per cent had a cafeteria of any kind. Only 4 per cent had any sort of canteen, and over 20 per cent, or one-fifth, had not even a room in which to eat lunch. This is clearly not a very good showing, but it is now rapidly improving.

Another interesting feature of some of these inspections has been the scoring of the lunches, either bought or carried, in certain plants. A "good" lunch must have three things: sandwich or plate luncheon including a protein food; a vegetable other than potato, or a fruit; and milk, preferably as a beverage. A lunch is called "fair" if two of these are present, and "poor" if one or none is present. About one-third of all war workers carried lunches (that is, lunch boxes) rated as "poor." If a worker bought a lunch in a plant cafeteria it was twice as likely to be a good lunch as a "carried lunch." The majority of the "poor" lunches, whether bought or carried, were among the women workers.

The war gives us a special chance to study the effects of improving nutrition, in terms of industry. Frankly, there is very little scientific evidence to show just how much better the production will be after installing a plant cafeteria, or making any other similar change. But it is gradually accumulating. In one Canadian industry a cafeteria was started and the number of reports to the nurse for first-aid treatment, etc., was reduced by 27 per cent. This shows that an effect can be anticipated, the extent of which we have yet to determine.

And what of the future? When these figures are finally compiled I expect that the result will show a startling effect on industry obtained by proper food and facilities. If this is found, then industry of the future will have to concern itself with the food eaten by the workers in the plant, for its own good as well as the good of the employees.

Educating the Public About Foods. Nutritionists all over the world have for years been giving the public information about food. Now, with the war, our governments are officially sponsoring nutrition programs. It is well to ask ourselves what basis we have for such programs. Why are they needed, especially right now? You probably know the answers for the United States, but let me tell you something of our Canadian findings. We have evidence right now that malnutrition (of a type) is common in Canada; there is no doubt that malnutrition has a serious effect on health, morale, and our life and happiness, both now and in the years to come. Therefore we must get on with the job of combating malnutrition.

It is interesting, in this connection, that everyone who studies this problem emphasizes the idea that only through wiser use of *foods*, not pills or medicines, can generally improved nutrition for all people be obtained. Certainly, in my opinion, nutrition education must be concerned with foods as such—how to grow them, or buy them, or cook them—rather than being chiefly concerned with a mass of theoretical data.

It is well, however, to consider what are the causes of this malnutrition which has been found in Canada as well as in the United States. In Canada, there are probably three causes of malnutrition. The first is economic. Let us face it squarely that even

in a land of plenty, some people have been and are undernourished because they cannot afford an adequate diet. The second cause is undoubtedly educational. In our Canadian Dietary Surveys some families were found to be much better nourished than others, yet they had the same income per person, or were spending the same amount of money on food. In these families it was obvious that some housewives were getting more nutritional value for their dollar. This applied even in homes spending considerable money on food. Extra food money certainly tends to make a family better nourished, but it is no guarantee. The third cause of our malnutrition is indifference, and sometimes I think that this is a major factor, especially among some sections of the population.

What of the future of nutritional education? When this program is over will there be anything left to do? Well, I cannot see the end of a nutrition program. Not only must we give information to every housewife, every worker, every business man, *but we must help them use it.* It is this phase which is of great importance in the future. Grocery stores must make it easier for housewives to buy the most nutritional food. Restaurants must make it easier for their customers to buy proper meals. This will all be going on in the future.

The most important factor for the future of nutrition education will be its proper emphasis in schools, not only in the classroom, but in the school lunchroom. And not just in some schools, but in *all* schools. And not just any kind of courses or lunches, but only those which are uniformly good and adequate. I like to hope that when our authorities realize that children will learn better and faster if adequately fed, the school lunch will be accepted as the best means of assuring adequate nutrition. Some day we may have the figures to show just how much money would be saved in our educational system by providing adequate lunches, and in turn, how much money would be saved the nation as the result of a better-fed population.

Consultation Service on Nutrition. The fourth aspect of the work of my division at Ottawa concerns nutritional advice to other government departments. With the advent of a Foods Administration and rationing in Canada, advice on nutrition has been needed to an increasing extent.

Only three items are rationed at present in Canada—sugar, tea and coffee—but a host of problems have arisen in which the nutritional values of foods are receiving consideration. Labor is becoming so scarce that it is now proposed to take workers from less essential industries and put them into war industries. Although food industries as a whole rate high in the labor picture, some of them are certainly more important than others. Then there are problems of substitutions. Canada will not be getting many things formerly common, such as dried fruits.

More important even than rationing, at present, is Canada's price ceiling. You, in the United States, have been moving rapidly in this direction recently. It is not my place to discuss price control in detail. You must realize that it is a tremendously difficult job, but it does seem to be working. Certainly the Canadian public is not paying nearly so much for some foodstuffs as they would have paid without a price ceiling.

The important point that I want to make in my discussion today is simply that price control seems to be feasible. It has a definite place, I believe, in the future, when the voice of nutrition will be heard in many branches of government, and will influence an integrated government policy.

In the future we should have a plan that will calculate the food supplies needed to feed our whole population adequately, and the agricultural production needed to meet these requirements. This agricultural production should not be just talked about, but steps should be taken to see that it is carried out. Probably that means a guaranteed and adequate price to the farmer, the retailer and the consumer. It may also mean changes in dietary habits of large sections of our populations, changes which can be influenced by price control and the educational efforts of our health services and educational systems. Even though nutrition is not the only factor in health, such an integrated plan would tend to assure our whole population the foods needed to promote better health.

In conclusion, I have referred to our ability to calculate how much food we need to feed our whole nation adequately. In recent months I have been making such calculations for Canada, which so far as I know have not been attempted heretofore. But we can consider food requirements in a broader way. The great British nutritionist, Sir John Orr, has suggested that postwar reconstruction should concentrate on three needs only, and of these food stands first, shelter next, and work third. He says that we should calculate food requirements for the whole world, and arrange for food-producing countries to contribute toward meeting these needs in a manner that will reduce waste. The mass distribution methods now demanded for war, could be employed to distribute this food. The increased agricultural production would stimulate machinery and transportation facilities. Instead of trying to regulate the whole world we would concentrate on regulating these few simple human requirements.

It is a vision, true, but I think that this vision is worth working for, not only for our own good, our own health, but also for the whole future of mankind.

THE INDUSTRIAL CAFETERIA—A SCHOOL FOR NUTRITION[1]

MARY C. KELLY[2]

In changing from public school lunch work to that in an industrial cafeteria, one is impressed by a number of obvious contrasts with regard to operation. The most outstanding impression is that this is the sort of physical set-up which we have long sought as the ideal place for group feeding. The cafeteria with which I am associated is typical of a comparatively small, but ever increasing number of cafeterias which are more than just eating places. They are inherently classrooms where the home economist is the teacher.

Here is an organization with adequate means and personnel to operate a cafeteria successfully—not under compulsion or pressure, but by choice. Since the management has decided, by choice, to provide its employees with a cafeteria, the unit is of sufficient importance to warrant the whole-hearted support and consideration of the management. It is not subordinated as a "necessary evil" in conducting a business, but is maintained as a complete entity and considered in its proper relation to other company departments.

For example, the cafeteria does not owe its location to chance. The location has been chosen with the thought of providing maximum fresh air, light, and comfortable seating. The furnishings are attractive, comfortable, uncrowded, and clean, and the employees and attendants carefully selected. By providing the proper surroundings, the management has gone a long way in attracting the employees and competing with outside cafeterias and restaurants. To attract employees further, lunch periods are sufficiently long for leisurely eating, while menus are arranged to make an improper selection of food difficult.

Having thus competed with outside eating places for employee patronage, the next problem is to hold that patronage, and here again a cafeteria operated by choice has the advantage. Only the highest quality foods are served, the portions are generous and the prices reasonable. The result of these policies speaks for itself—more than 85 per cent of all employees are served daily in the cafeteria.

I have mentioned these facts solely to show that industrial cafeterias, such as ours, can and in most cases are playing a very important part in the war effort. Even in normal times, they have a vital effect on the local community, and today, because of their set-up, they are already organized to influence the well-being of our civilian population.

[1] Presented before the American Dietetic Association, Detroit, October 21, 1942.

[2] Cafeteria Manager, The Aetna Life Affiliated Companies, Hartford, Connecticut.

The teaching of nutrition involves more than the cafeteria itself, and those maintained "by choice" are equipped and ready to give the necessary supplemental help. Through the facilities of our publicity department, printed folders, posters, displays, motion pictures and other visual educational materials are made available. Our personnel department helps to recruit and retain the right kind of cafeteria employees. A staff of doctors and nurses in the medical department is always available for advice and help and to ensure that employees are in satisfactory physical condition. Finally, because of the management's real interest, it wholeheartedly supports essential home economics principles.

All these facilities make the industrial cafeteria a strategic starting point for government nutrition projects. It is an ideal classroom for teaching and experimentation. Here in the industrial cafeteria is a group of adults interested and eager to do what they can in the war effort. They are interested in the government nutrition program and are anxious to learn what they can do. Many of them have children in schools; fathers, mothers, sisters and brothers working in war industries; and relatives and friends who cannot secure their information from other sources.

These groups of employees realize that they face limited food in the future, that their incomes demand careful spending, that substitutes are inevitable. They want to learn, they must be informed and they welcome the sincere, informal and professional advice which they receive in their cafeteria.

Today, industrial cafeterias are assuming the responsibility for more than just making nutritious foods available. They are promoting, publicizing, and selling these foods to their workers. Through these efforts, thousands of men and women are learning how to improve health by selecting more nutritious foods. For example, in our own cafeteria, the use of whole milk is promoted by offering it for sale at cost. Interest in enriched flour is created by offering wheat germ for sale. Cheese is sold in a variety of new dishes, while fresh vegetables and fresh fruits are used daily in reasonably priced, attractive salads.

Education in the ever-increasing use of substitutes is even more important. Instead of apologizing for sugar substitutes, we widely publicize the fact that they are being used in new recipes. When we are unable to get certain cuts of meats, we sell the idea of accepting substitute cuts by preparing little-known and unusual dishes. To stimulate further interest in the choosing of nutritious foods, and in accepting substitutes, and because forced education is usually obnoxious, employees are encouraged to contribute recipes and to submit suggestions for the use of substitutes. Each week a department of our

employees' paper is devoted to this subject, and the column has resulted in a large number of suggestions.

Through a continuous flow of literature, displays and posters, we constantly point out the nutritive advantages of these various foods and show the employees exactly what effect they have on their well-being.

Employees are encouraged to ask for additional copies of printed material, thus extending the educational work into the home. Through the cooperation of the company's motion picture bureau, we made a motion picture in color, available not only to employees, but to the general public as well. The picture, which is entitled "Vitality for Victory," takes the mystery out of vitamins and other nutrients by translating them into various foods.

Inducing workers to choose proper foods in the cafeteria is important, but they must be made conscious of the need for balanced, nutritious foods at home and in other restaurants and cafeterias as well. The proper selection of food for only one meal a day is of comparatively small value; therefore the cafeteria "school" must extend its educational program beyond the industry. Workers must be taught not only selection of proper diet, but they must be instructed in the proper preparation and serving of foods to get the maximum nutritional value.

INSTRUCTOR'S OUTLINE FOR CANTEEN AIDE COURSE

The first complete instructor's manual for a ten-hour canteen aide course to come to our attention is that prepared for the Rochester, New York, chapter of the American Red Cross, presumably by the same committee which contributed the material on the operation of emergency food centers for the manual issued by the Monroe County Office of Civilian Protection, described under "Nutrition and the War" in this JOURNAL for September. In doing so, the Rochester members of the American Dietetic Association and their co-workers have made an outstanding contribution and have again "rung the bell" in preparing practical, useful material in a form suitable for presentation to the public. In fact, the information given in this instructor's manual is so well organized and so important in its applicability to the requirements of those instructing canteen courses all over the country that it is being reproduced under the direction of Adeline Wood, coordinator of war activities, American Dietetic Association, and will be available from the Chicago office.

Some of the material in the instructor's manual is a duplication of that included in the Monroe County manual described in the September JOURNAL. The manual is divided into five lessons as follows:

Lesson I. Organization of Unit and Sanitation—including general regulations for members of the canteen corps, check list of equipment necessary for the sanitary and safe operation of a canteen, general and specific sanitary regulations (personal, those concerning care of food and equipment, care of kitchen and dining room, disposal of garbage, purifying of water, dishwashing, milk pasteurization), kitchen safety rules, cafeteria style of food service, directions for leaders and assistant leaders.

Lesson II. Stationary and Mobile Canteens—including selection of location, selection and arrangement of all equipment.

Lessons III and IV. Guide for Requisition and Purchase of Food, Emergency Menus, and Food Preparation and Service—including "A Guide to Good Nutrition" in chart form, furnished by the New York State College of Home Economics, Cornell University, which lists the "green," "yellow," and "leafy" vegetables and other foods under the general requirements; the food supply; emergency menus with market orders for 100, 200, 300, 400 and 500 persons; items for emergency shelf; record sheets; pattern menus for the extension of emergency feeding beyond a temporary period; arrangement of counters for self service; general directions for using dried whole egg and dry skim milk and preparing beverages; general aids in preparing menus; menus for a week, giving portions; and recipes.

Lesson V. Food Demonstration and Review.

After the fourth lesson, it is suggested that the teacher assign one student as leader to make out one day's menu for 100 people, then have the leader give each student a definite assignment as: (1) organization of unit, (2) market order, (3) preparation, (4) service, (5) dishwashing procedures, and (6) final canteen check-up before closing. Each canteen worker is asked to make a list of the working procedures, including all sanitary regulations that her assignment includes, and to give a report in writing during the final session of the class.

The "guide for the requisition and purchase of food" is in the form of a table which gives for each food the weight, or dry or liquid measure, the amount per serving, the unit of purchase for group, the amounts to purchase for servings of 50 and 100, and general specifications for purchase. For example, for unsweetened evaporated milk, the measure and weight is given as 1 lb., 2 cups, or 32 servings; the amount per serving, $\frac{1}{4}$ cup with $\frac{1}{2}$ cup water; the unit of purchase for groups, case of #10, or 1-gal. can, or 8 1-lb. cans; for 50 servings, $1\frac{1}{2}$ gal.; for 100, 3 gal.; general specifications—uniform consistency, good flavor. Likewise, for onions, the measure of weight is given as 50 lb., 1 bu.; the amount per serving, 4 oz.; unit of purchase, 1 bu.; for 50 servings, $12\frac{1}{2}$ lb., or $\frac{1}{4}$ bu.; for 100, 25 lb., or $\frac{1}{2}$ bu.; general specifications—mature, well-shaped, free from rot.

On the subject of pattern menus for the extension of emergency feeding beyond a temporary period, it is stated that "three rather evenly provided meals are best. They help to break a long monotonous day for the refugee. Meals are looked forward to with interest and the enjoyment of satisfying food occupies time and thought." Then follow the

pattern menus for breakfast, dinner (at noon), and supper. If labor, equipment, and food supplies are limited, it is suggested that only two meals a day be provided (morning and night) with a mid-day lunch for children. The pattern used in the recipes is illustrated in the following:

Scrambled Eggs

Size of portion, ½ cup

Number of portions, 100 Total yield 9⅜ qt.

QUANTITY	INGREDIENTS
10 doz.	eggs
1½ oz. (3 tbsp.)	salt
½ tsp.	pepper
12 (14½ oz.) cans or 1¼ gal.	evaporated milk
1¼ lb. (2½ cups)	butter *or* bacon fat

Beat eggs until they are no longer stringy. Add salt, pepper and milk. Put butter into hot pans. When it bubbles, add egg mixture and stir constantly, cooking slowly until firm, but not hard.

There are similar recipes for meat dishes, dishes using meat substitutes, sauces and dressings, vegetables, sandwiches, hot breads, salads, puddings, cakes, and beverages.

For the feeding of infants and children under 3 years of age, formulas and sample menus are included, contributed by Dr. Donald D. Posson.

The following tables and information will be made available through the Chicago office of the American Dietetic Association: (1) immediate emergency menus with market orders; (2) disinfection of drinking water; (3) emergency pasteurization of milk; (4) general suggestions for committees on food preparation, dining room service, and dishwashing; (5) arrangement and equipment for prolonged emergency service; (6) diagram of arrangement of service table for self service; and (7) suggested methods for icing foods and keeping foods hot for service.

NEW YORK STATE NUTRITION PLAN

According to the September 7 issue of *Health News*, weekly publication of the New York State Department of Health, the New York State nutrition plan, announced recently by the Office of War Nutrition Services of the State War Council, aims to provide essential vitamins, particularly the vitamin B complex, in the on-the-job diet of industrial war workers in order to build health and increase capacity for war production. The plan anticipates raising the nutritional status of the war worker by fortifying the worker's dietary while on the job with foods rich in vitamin C and to encourage consumption of more milk, eggs and other dairy products. It is hoped that through feedings of brewers' yeast, wheat germ, soy bean flour, etc., which may readily be added to a number of foods, the worker may obtain approximately one-half of his daily requirement of vitamin B_1.

The New York State nutrition plan will also reach housewives, boarding-house keepers, and other persons responsible for the feeding of industrial war workers, through an intensive program of instruction in food content, the prevention of vitamin losses in cooking, and provision of nutritious foods in the worker's lunch box. An approach will be made also through both labor and management with regard to more adequate provision for feeding the worker while on the job. This will include an attempt to obtain better facilities for the preparation and serving of foods within the plants, improvement of meals served, and provision for between-meal feeding, which was shown to be effective in preventing the decrease in muscular efficiency that occurs in the between-meal periods. Consumption of protective foods, such as milk and fresh fruit juices, will be encouraged in preference to the usual soft drinks and candy.

The program is concerned also with the education of restaurant and cafeteria proprietors outside of plants, and plant control with respect to proper methods of mass cooking, food selection and improvement of restaurant or cafeteria facilities in areas where such establishments are limited in number or overcrowded. In reaching this objective, the Office of War Nutrition Services plans to utilize all available trained personnel of the various departments and agencies of the state government and of all existing county organizations that have been actively engaged in nutrition education and demonstrations in the state in the past few years.

Physiologic Significance of Dessert

From the physiologic point of view the custom of ending the meal with a dessert probably serves two purposes, that of completely satisfying the appetite and that of providing a final psychic stimulus to the secretion of gastric juice. Those desserts with a high content of sugar or fat or both have a high satiety value. The presence of the sensation of appetite (and of the appetite secretion) is evidence of the physiologic fitness of the gastrointestinal tract to handle the food eaten, although normal digestion will proceed in the complete absence of appetite juice, which is secreted as a result of the sight, smell or taste of appetizing foods. Thus the serving of an attractive, palatable dessert may be considered a useful, though not indispensable, factor in the proper conditioning of the digestive tract for the performance of its normal function.—*Desserts in the diets of adults and young children, Council on Foods and Nutrition, J.A.M.A., 116: 506, 1941.*

Book Reviews

Dietetic Manual. Compiled by the Dietary Staff of St. Louis University Hospitals. Paper. Pp. 163.

The manual, arranged in mimeographed form, circla bound so that the pages lie flat, and with washable covers, is a complete and carefully prepared, therefore excellent compilation for its purpose: namely, to assist members of the medical, dietetic and nursing professions in feeding the sick. Especially noteworthy is the fact that attention is called to diets likely to be deficient in one or more factors, and to the danger of their use over long periods of time.

The first section, concerned with the adequate diet, is concise, correct, cautious (where necessary), and up to date. Appended are references to the literature in connection with certain statements. This is followed by a section on "Routine Hospital Diets" in which the selective menu (as offered at St. Mary's and Firmin Desloge Hospitals) and the details of routine hospital diets are explained. Preceding specific examples of therapeutic diets are full instructions for the ordering of such diets in which the following pertinent comment appears over the signature of the director of the resident medical staff: "This manual only offers suggestions for diets to be used in certain well-recognized conditions where dietary regulation is of value in treatment. The personnel of the department of dietetics is willing at all times to discuss with the visiting, resident and intern staff any questions that may arise in the prescription, preparation and serving of a diet. They recognize as one of their activities the instruction of patients in the use of diets both in the hospital and the outpatient department. Whenever a patient is to be discharged from the hospital on a special diet the dietary department should be given sufficient notice of such discharge so that the patient will be adequately instructed before leaving the hospital."

The reasons for the use of each typical therapeutic diet and its important characteristics are explained, and examples of many type diets are included in the form of sample menus. Here, too, references to the literature suggest further reading. The appendix, which is indexed, is unusually complete and includes standard serving portions of common foods and lists of fruits followed by vegetables, grouped in quantities (stated in grams and household measure) yielding a like amount of protein and fat and an ascending amount of carbohydrate ranging from 3 to 18 gm. Simple directions are also included regarding food substitutions for the diabetic, the general care of the diabetic, and the administration of insulin. Other tabulations concern the mineral, oxalic acid, cholesterol, cellulose, etc. content of foods.

Allergy in Clinical Practice. By Staff Members of the Cleveland Clinic, under the direction of Russell L. Haden, Chief of the Medical Division, and edited by J. Warrick Thomas, Chief of the Section on Allergy. Philadelphia: J. Lippincott Company, 1941. Fabrikoid. Illustrated. Pp. 354. Price $5.

According to the introduction by Dr. Haden, this book is intended "primarily to illustrate the role of allergy in the production of disease in man. Each specialist in a field in which allergy is applicable has evaluated this principle in his field which seems to be much more desirable than for the allergist to evaluate the role of allergy in some other specialist's field." The emphasis throughout is on allergy as a factor in general medicine, therefore the differential diagnosis in the various forms of allergy has been carefully delineated. The many manifestations of allergy are discussed in separate chapters followed by chapters on endocrine considerations in the allergic patient, uncommon manifestations of allergy and allergy in general practice. Case histories illustrate each discussion.

While the dietitian will be especially interested in the chapter on gastro-intestinal allergy, which includes directions for the use of a food diary and sample forms, the book as a whole will serve as a useful reference for the student and a real aid to the practicing dietitian, intent on cooperating intelligently with the physician in the care of the allergic individual. In fact, the excellent illustrations in black and white and color, the very legible and pleasing typography, and the clear and easily understandable exposition of each subject make this book ideally suited to the needs of the general practitioner and the dietitian.

Microbiology of Meats. By L. B. Jensen, A.B., M. Sc., Ph. D. Champaign, Illinois: The Garrard Press, 1942. Cloth. Pp. 252. Price $4.

The author, now chief bacteriologist for Swift & Company, and formerly assistant professor of bacteriology at the Mayo Foundation and instructor in bacteriology at the University of Chicago, is well fitted to write a book of this type which "deals with the industrial microbiology of meat foods, and where necessary the academic features of bacteriology have been fitted into the jig-saw puzzle of an old industry." According to the preface, the meat packing industry was well known before laboratory aid was even remotely considered necessary for guidance and control of processing. Since the microbiologist is a late comer in the meat industry he must, of necessity, adopt the terminology intelligible to operating men, and the presentation of data in this book is that of practical meat operations, *i.e.* the "flow-sheet" method of times, temperatures, substrates, and number and species of micro-organisms. Nevertheless, the treatment of the subject is scholarly and should stimulate further research. The author states that "under every caption in this book lies a pristine field of microbiological research. The incompleteness of these chapters indicates the extent to which research can aid the industry of the future."

The book is essentially a summary of recent investigations of the following: effects of sodium nitrate on bacteria in meat, gaseous fermentation in meat products by the genus *bacillus*, bacteriology of green discolorations in meats, action of micro-organisms on fats, study of ham souring, microbiology of beef, bacteriology of sausage, microbiology of bacon, control of micro-organisms, bacteriology of spices, salt, sugar, paper, and wood, and a concluding chapter on food poisoning of bacterial origin. Detailed descriptions of the latest methods of processing, together with their advantages and disadvantages, are given in every case, and all references to the literature are carefully cited.

Food 'N' Fun for the Invalid. By Florence La Ganke Harris and Dorothy Abigail Ridler. Decorations by Frank Lieberman. New York: M. Barrows and Company, Inc., 1942. Cloth. Pp. 255. Price $2.

The authors of this book, both of whom are members of the American Dietetic Association, are experienced dietitians. Miss Ridler was formerly a member of the dietary staff of University Hospitals, Cleveland, and more recently on the staff of the Welfare Foundation of Cleveland. In writing this book the authors have carried out a rather original plan which is designed to make the average housekeeper proficient in the dietary care of the sick. The book will be a real aid in caring for the sick in the home, for it should dispel any confusion as to the meaning of "full liquid"; "soft"; or "convalescent" diet. While much of the book is devoted to recipes appropriate in such diets, to which key letters are appended denoting the type of diet in which they may be used, the book covers more than its title might imply.

Specific chapters are devoted to the allergic, the overweight and the diabetic, and to a direct and simple presentation entitled "Nutrition in Facts and Figures" into which as much sound nutritional information is compressed as may often be found, far less readily, and less simply stated, in books for the lay reader devoted solely to the subject of nutrition. Obviously, at least one of the authors has had considerable experience in the clinic or elsewhere as a teaching dietitian, for there is no evidence of overestimating the reader's ability to absorb facts nor are these facts obscurely hidden in tiresome verbiage. The final section, "Fun and Comfort for the Invalid," should appeal to the busy housewife and to the harried nurse, experienced or otherwise, who must cater to the fretful invalid.

Jeanne Owen's Book of Sauces. New York: M. Barrows and Company, Inc., 1942. Cloth. Pp. 156. Price $1.75.

This is an interesting book, a real supplement to the host of culinary compendiums now available, in which the author simplifies the subject of sauces, sorting them out very properly into the basic or "mother" sauces and the "smaller" sauces. One word of caution bears repeating: do not serve *too much* sauce with a food.

A pleasing touch, aside from the merit and simplicity of the recipes, is the brief introduction each receives. The author explains that Sauce Allemande, for instance, is not of German origin as the name implies: it owes its name to its "blondness" as opposed to Espagnole, or Brown Sauce. In addition, excellent suggestions appear at the head of each recipe, as to the food or foods with which it blends appropriately.

While it cannot be denied that cream, butter, eggs and other foods, the prices of which at this writing have been undeterred by ceilings, are essential ingredients of most sauces worthy of the name, there are many in this book that are inexpensive. The wines and nearly all the herbs and other items likewise essential to fine sauces, if of the domestic, or kitchen garden variety, are ordinarily readily obtainable and inexpensive.

Another helpful feature of the book is the index listing of basic sauces and those appropriate with a given food, from beans to soufflés, tripe, turkey and vegetables. Every dietitian proud of her food standards will welcome this book as an aid in enlivening the menu.

Textbook of Anatomy and Physiology. Eleventh edition. By Diana Clifford Kimber, Carolyn E. Gray, A.M., R.N., and Caroline E. Stackpole, A.M. New York: The Macmillan Company, 1942. Leatherette. Illustrated. Pp. 769. Price $3.

The present edition of this textbook was revised by Miss Stackpole, with the assistance of her associate, Lutia Clemson Leavell, in the Department of Biology, Teachers College, Columbia University. Much new material has been added, some of the old has been omitted, and there has been some rearrangement of general topics and of the details of subject matter. The organization of chapters is in five units, substantially as indicated in the Curriculum Guide for Schools of Nursing. The number of illustrations has been increased to 352, and many legends for the figures have been revised.

The text can be supplemented by Stackpole and Leavell's *Laboratory Manual in Anatomy and Physiology*, reviewed in this JOURNAL for June.

For those not familiar with this text, the following features are worthy of mention here: excellent illustrations throughout, some partially colored; summaries in outline form at the end of each chapter; list of references at the end of the book; and a glossary which supplements the very complete index. Chapter XIX on food, vitamins and the physiology of digestion, including a table of vitamins, and Chapter XX on absorption, metabolism of carbohydrates, fats, and proteins, basal metabolism and food requirement, covering 73 pages, seem to include the essentials, and the summaries of these chapters should be valuable in fixing in the student's mind a sound concept of the complex processes of digestion.

ALLERGY AS A FACTOR IN DISEASE CAUSATION

Hypersensitivity is a very important factor in the causation of disease in man. As von Pirquet expressed it originally, the patient is allergic or presents an "altered sensitivity," to certain substances which cause minimal or no symptoms in other individuals. Fundamentally, the reaction is characterized by a spasm of smooth muscle and a tendency for fluid to leave the blood vessels because of an increased permeability of the vessel walls. Thus most symptoms which are considered to be allergic in origin depend upon the exudation of fluid and an increased tonus or spasm of smooth muscle somewhere in the body.

Estimates of the incidence of allergy vary from 10 to 60 per cent. Perhaps 10 per cent of the population shows significant symptoms of allergy; and as many as 60 per cent may have some manifestation of the allergic state.

Allergy is one of the few fundamental factors in the causation of disease. In clinical medicine, relatively few common denominators in the production of a patient's symptoms have to be kept in mind; thus the clinician thinks of tumor growth, bacterial development, abnormalities of internal secretion, and disturbances in nutrition. Allergy also is a commonly encountered and important common denominator of disease.—*Allergy in Clinical Practice; by Staff Members of the Cleveland Clinic. Philadelphia: J. B. Lippincott Company, 1941.*

Current Literature

AMERICAN JOURNAL OF DIGESTIVE DISEASES

Vol. 9, September 1942

*The acidity of the "ulcer-bearing area" of the duodenum in normal persons. J. E. Berk, M. E. Rehfuss and J. E. Thomas.—p. 276.

Contributions made to knowledge in regard to the pancreas in 1941. R. Elman and A. M. Large.—p. 303.

Acidity of Duodenum. The important "ulcer-bearing" first part of the duodenum in normal persons is an acid area with an average *pH* in the fasting state of about 5.6. The duodenal bulb in normal subjects is endowed with a capacity to neutralize, buffer and dilute gastric chyme that generally exceeds the physiologic needs. Free acid is usually absent. The acidity of the gastric contents is not the only factor which determines the reaction of the contents of the first part of the duodenum.

AMERICAN JOURNAL OF DISEASES OF CHILDREN

Vol. 64, September 1942

*Organic phosphates of the blood and mineral metabolism in diabetic acidosis. G. M. Guest.—p. 401.

*Long-term growth of diabetic children. A. E. Fischer, H. S. Mackler and H. H. Marks.—p. 413.

*Relation of vitamin C to scarlet fever, rheumatic infections and diphtheria in children. A. F. Abt, L. M. Hardy, C. J. Farmer, and J. J. Maaske.—p. 426.

Diabetic Acidosis. The problems of nutrition assume increased importance in wartime, particularly as they affect children's health. The role of phosphorus compounds in the blood is important because of a continual exchange between inorganic and organic phosphates. Through the enzymatic reactions of glycolysis some of the inorganic phosphorus of the blood plasma constantly enters and leaves the blood cells, while some of it passes to and fro from the blood and tissues. Enzymes and phosphorus bear more investigation, especially in regard to diabetic acidosis.

Growth of Diabetic Children. A recent study of diabetic children and adolescents whose diabetes began before 15 years of age showed no consistent variations from normal average growth in a group of Minnesota children. Joslin's long-term study shows diabetic children to be tall for their age at the onset of disease, and thereafter shorter than nondiabetic children. The average rate of growth fell below normal in diabetic boys and girls. There was a tendency for the boys to be underweight and the girls to be overweight, even though the caloric intake was similar. This latter fact is probably due to the greater physical activity of the boys.

Vitamin C in Infections. In infections, the demand for vitamin C is increased. Vitamin C is presumed to play an important role in resistance to disease; and a low C level predisposes humans to disease since membranes are more permeable. After a disease develops the demand is greater and administration of C is necessary in some cases. The high fevers cause faster utilization of C.

Contributed by Colleen Cox Hambleton, Food Utilization Division, Bureau of Home Economics, U. S. Department of Agriculture, Beltsville, Maryland; Quindara Oliver Dodge, School of Home Economics, Simmons College, and Women's Educational and Industrial Union, 264 Boylston Street, Boston; and the JOURNAL staff.

AMERICAN JOURNAL OF THE MEDICAL SCIENCES

Vol. 204, August 1942

*The treatment of underweight with insulin. J. B. Greco, A. O. Lima, and J. R. Cancado.—p. 258.

*The inheritance of diabetes insipidus. H. Blotner.—p. 261.

Vol. 204, September 1942

*Diagnostic criteria and resistance to therapy in the sprue syndrome. F. M. Harris.—p. 436.

Insulin in Underweight. The use of insulin in 30 cases of underweight caused a gain in weight of 1 to 27 lb. (average, 8.7 lb.). The patients received insulin only once a day in progressive doses. The possibility that the pancreas is inhibited by several daily doses of insulin is discussed.

Inheritance of Diabetes Insipidus. A review of the literature on familial diabetes insipidus is presented. Diabetes insipidus is a disease which may be inherited and transmitted through many generations of a family through the maternal or paternal side to either male or female.

Sprue. The sprue syndrome (celiac disease) is amenable, as a rule, to proper therapy. Celiac disease responds favorably to parenteral liver extract when vitamin B complex is added. In adult sprue, the response to parenteral liver extract, with a diet low in fats and rich in proteins and vitamins, is dramatic in the majority of patients. Such patients quickly regain their appetites, eat ravenously and gain a pound a day. The tongue returns to normal and the diarrhea ceases promptly. Details of diagnosis are given. Cases in which sprue patients fail to respond to this therapy are cited, although the reason for poor response is not yet known.

AMERICAN JOURNAL OF PUBLIC HEALTH AND THE NATION'S HEALTH

Vol. 32, September 1942

*Working for better nutrition in a rural community. W. R. Willard.—p. 996.

Thiamin content of milk in relation to vitamin B_1 requirement of infants. E. M. Knott.—p. 1013.

*Education in nutrition as part of the maternal health program. C. A. Heller.—p. 1021.

Nutrition in a Rural Community. Describes the nutrition program in a Maryland community, in which the school lunch program is featured. Lay helpers with the dietary survey were effective propagandists for the cause of school lunches. Surplus commodities were used. Demonstrations were conducted at prenatal clinics. Nutrition education for the individual and family was conducted by nurses.

Education in Nutrition. Nutrition education is an important phase of the maternal and child health program. Since the number of nutritionists is limited the responsibility of teaching nutrition to families falls upon the nurse.

The state nutrition consultant has the responsibility of helping each nurse solve her local nutrition problems in a practical way. In New Mexico nutrition work with the midwives was an effective way of demonstrating nutrition teaching to the nurses. Particular attention was paid to the traditional food habits of the families served.

BRITISH MEDICAL JOURNAL

September 5, 1942

*An alphabet of breast-feeding. C. McNeil.—p. 271.

September 12, 1942

*Special clinics for diabetics. R. D. Lawrence.—p. 322.

Breast-Feeding. In this third year of war the saving of food is an urgent duty; yet there is a serious waste of breast milk caused by neglect and/or mismanagement. It is the ideal food for the first 6 months of life and should continue so during the first year. Difficulties of breast-feeding are discussed. The remedies suggested are practical ones. Human milk is a food perfectly designed in its chemistry for digestion and nutrition of the infant, is the cheapest of all baby foods, and is safe since it is almost proof against infections.

Diabetic Clinics. The Diabetic Association has requested the Planning Commission to establish clinics on a regional basis throughout the country for the welfare of diabetics. This group realize that their health and working efficiency depend on advice from doctors at special centers. Laboratory requirements are not elaborate so that the initial expense is not great. Already quite a number are being organized.

CANADIAN MEDICAL JOURNAL

Vol. 47, September 1942

*Bringing Europe back to life. Editorial.—p. 274.

Bringing Europe Back. Even in peacetime, Europe has never been self-supporting; consequently the needs after the war will be gigantic. Estimates of postwar raw material and food needs are being prepared by the Allies. The technical problems of agricultural relief, medical relief, nutrition, and inland transportation are under consideration. Europe will be expecting supplies of coffee, cocoa, rice, tropical fruits, and vegetable oils as well as meat and butter as soon as shipping can be devoted to these purposes.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

Vol. 120, October 3, 1942

*Handbook of nutrition: VII. Iron in nutrition: Requirements for iron. C. W. Health.—p. 366.

Requirements for Iron. In spite of evidence to the contrary, the idea is still current that when the diet is deficient in iron the red cells soon become deficient in hemoglobin (hypochromic) and smaller (microcytic) than normal. This idea is certainly not true for the healthy adult male or for healthy women after the menopause. It may sometimes be true for growing children and for women during their menstrual life or during pregnancy, or for any person who has lost or is losing considerable amounts of blood from some lesion of the body. Much remains to be learned about the metabolism and functions of iron, but of this we can be quite sure: a diet deficient in iron has not been known to produce iron deficiency except in the presence of increased needs for iron such as growth, pregnancy or blood loss. Iron is an element, and unlike certain other organic substances of the food it is not destroyed or used up in the body but is conserved and, if not excreted, can be utilized again and again. The need for iron varies greatly at different ages and under different conditions. In growth there is a need for iron to supply the hemoglobin in the expanding blood volume. In fact, by far the greater part of the functioning iron of the body is located in the circulating hemoglobin. Growth of the blood volume can be placed beside loss of blood as an important contributing cause of iron deficiency. At puberty as well as in infancy there is an acceleration of growth and an increase in the circulating hemoglobin. Presumably, if the iron content of the diet is satisfied, the content of copper, cobalt, and manganese will be satisfied. Iron deficiency anemia itself, which can and often does arise in spite of adequate iron in the food, is easily treated by the administration of adequate doses of inorganic iron preparations. Iron may be properly given as a preventive against the later occurrence of iron deficiency during pregnancy, in infancy and early childhood and in girlhood about the time of puberty. There is therefore some justification for the proposals to add iron salts to flour for civilian consumption. This is perhaps especially justified because of our lack of knowledge of the availability of iron from various foods. There is no more useful field in nutritional research at the present time than the exploration of the adequacy and inadequacy of different foods and enriched foods in supplying substances necessary to the health of man.

JOURNAL OF NUTRITION

Vol. 24, September 1942

*The absorption and retention of carotene and vitamin A by hens on normal and low fat rations. W. C. Russell, M. W. Taylor, H. A. Walker and L. J. Polskin.—p. 199.

*The effectiveness of linoleic, arachidonic, and linolenic acids in reproduction and lactation. F. W. Quackenbush, F. A. Kummerow and H. Steenbock.—p. 213.

*Linoleic acid, pyridoxine and pantothenic acid in rat dermatitis. F. W. Quackenbush, H. Steenbock, F. A. Kummerow and B. R. Platz.—p. 225.

*Nicotinic acid in foods. R. W. McVicar and G. H. Berryman.—p. 235.

*The sulfur metabolism of children. E. F. Beach, D. M. Teague, O. D. Hoffman, B. Munks, F. C. Hummel, H. H. Williams and I. G. Macy.—p. 257.

The effect of pantothenic acid deficiency on the blood lipoids of the dog. J. V. Scudi and M. Hamlin.—p. 273.

*The interrelationship of calcium, phosphorus and nitrogen in the metabolism of pre-school children. J. E. Hawks, M. M. Bray, M. O. Wilde and M. Dye.—p. 283.

*The effect of the level of protein intake upon the urinary excretion of riboflavin and nicotinic acid in dogs and rats. H. P. Sarett, J. R. Klein and W. A. Perlzweig.—p. 295.

Carotene and Vitamin A. In hens the absorption of carotene in the crystalline form is improved by the presence of fat in the ration. Absorption of vitamin A was essentially the same on normal and low-fat rations. Neither carotene nor vitamin A is eliminated from the body stores by way of either the kidney or the intestine. The retention of vitamin A in the liver was greater in the hens which received the ration with normal fat content.

Unsaturated Fatty Acids. On a low-fat diet furnishing only 3.0 mg. unsaturated lipid or a calculated maximum of 0.8 mg. linoleic acid per rat per day, rats were raised to maturity and bred. After a prolonged gestation period and severe hemorrhage in parturition, the young were born dead or died soon after birth. A scaly condition of the hind paws and tail was observed after about ten weeks on the diet. Ethyl linolate and ethyl arachidonate prevented or cured the dermal symptoms completely and produced normal young. Ethyl linolenate alone did not make possible the production of normal young nor cure the dermal symptoms. Fat analyses revealed a remarkable constancy in both the percentage of total fat and the iodine values of the fat, irrespective of the dietary supplements.

Rat Dermatitis. Rat acrodynia was produced on a diet containing 0.003% unsaturated fat. Ethyl linolate but not pantothenic acid or pyridoxine cured the acrodynia. In prophylactic tests neither pantothenic acid nor pyridoxine prevented the acrodynia but pyridoxine retarded the development of the dermal lesions.

Nicotinic Acid in Foods. A résumé of the literature on nicotinic acid is presented in table form. The foods have been grouped by classes according to similar nutritive content or unique contribution to the diet.

Sulfur Metabolism. During continuous metabolic balance studies of 8 normal children, 8 to 12 years old, over 45 days, under controlled conditions of healthful activity and emotional security, sulfur excretion and retention and urinary sulfur partition were studied in relation to nitrogen metabolism. The elimination in the urine represented 77.0 and 82.8% of the sulfur and nitrogen intakes, respectively. The average nitrogen-to-sulfur ratios for intake, feces and urine were 13.4, 10.5, and 14.4, respectively. The nitrogen-to-sulfur ratio of the retentions averaged 8.8.

Ca, P and N Metabolism. Five preschool children received diets containing at first 3 and then 4 gm. protein per kilogram of body weight. For 2 children whole egg, meat and milk increased the nitrogen content of the diet while for the others egg white and gelatin were used. The higher protein diet had no effect on calcium absorption or retention. It caused a decrease in the absorption of phosphorus but there was a better utilization of the amount available. There was an increase in both nitrogen absorption and retention. Weight gains were greater on the 4 than on the 3-gm. protein diet.

Nicotinic Acid, B_2 and Protein. The urinary excretions of nicotinic acid by dogs and of riboflavin by both dogs and rats bear an inverse relationship to the level of protein intake. Riboflavin and nicotinic acid may be concerned in protein anabolism.

SCIENTIFIC MONTHLY

Vol. 54, September 1942

*Fats and oils in wartime. T. S. Harding.—p. 273.

Fats and Oils. War with Japan has greatly affected our imports of fats and oils. In 1918, one factor in the German collapse was the low-fat content of the civilian diet. Today the existence of synthetic vitamins renders fats less indispensable in that respect. Fats and oils are used for purposes other than foodstuffs. In war these uses become more urgent than in peace. Farmers are urged to increase soy bean acreage next year as considerable substitution can be made among the vegetable-oil crops to take the place of oils and fats no longer available.

AMERICAN RESTAURANT MAGAZINE

Vol. 26, September 1942

*The nutrition problem in war industry. W. A. Rorison.—p. 24.
*How to price dishes on menus of industrial eating places. Horwath and Horwath.—p. 28.
*The 1942 canned goods supply picture. A. Frooman.—p. 35.
*Positive portioning—key to food conservation and control.—p. 36.
What insurance coverage should I carry in my restaurant? F. C. Crowell, Jr. —p. 38.
What's new in our industry.—p. 46.
Quantity and quality service at Northwestern student center. M. A. Miller. —p. 52.

Nutrition Education. Since 1941 Servel, Inc., Evansville, Indiana has been waging a threefold nutrition program: to improve eating habits of the workers and their families; to provide better balanced meals in the company cafeteria; to raise standards of packed lunch boxes and to encourage the selection of correct food combinations in its company restaurants. It has published and distributed among its employees two booklets, a "Nutrition Guide and Meal Planner" and one on lunch box meals. The plant cafeteria has featured well-balanced meals at low cost and daily victory meal combinations. Already there has been a 50% increase in the buying of recommended foods and a 16% decrease in absences caused by illness.

Pricing Menu Items. Pricing menu items necessitates determination of food costs per dollar sale based upon cost of food portions determined from standardized recipes. The normal distribution for the income dollar in an average industrial restaurant shows a food cost of 59.75%. Food cost per dollar sale is determined by dividing the sales price into food cost of the foods on the menu combination or the individual food item.

Canned Goods. Increased percentages of 1942 packs of specified canned fruits and canned vegetables have been ordered set aside for government agencies; two-thirds of the quota must be from the first preference grade in the largest specified can size. There is not enough fresh, frozen and dried fruit to lighten this situation. Institution buyers should take care of their canned food requirements for 1942-43 while supplies and selections are on hand. Cooperation between canner, purveyor and buyer is necessary to prevent acute shortages.

Positive Portioning. Conservation, rationing, and current shortage necessitate positive portioning to protect cash and labor investment in food. Measurement by weight and volume is the way to achieve positive portioning. Portion scales, soufflé cups, casseroles, and measuring tools may be used to control portion sizes. Advantages of using soufflé cups to standardize portions are ease of use, resultant speeding up of service, and consistently attractive, sanitary appearance of food when served to guests.

FOOD INDUSTRIES

Vol. 14, September 1942

Compressed foods needed—dehydration is not enough. L. V. Burton.—p. 37.
*Whole-wheat flour storage life.—p. 38.
*Time factor in distribution of dehydrated vegetables.—p. 38.
*Concentrated soup by Heinz.—p. 38.
*Compressed flour.—p. 39.
*Astonishing losses of vitamin C.—p. 39.
*How to find used equipment.—p. 40.
*FRC having its troubles.—p. 40.
*Using fruit purées to get new flavors in ribbon ice cream. D. K. Tressler. —p. 49.
*Demethylated pectins offer advantage in low-sugar jellies. G. L. Baker and M. W. Goodwin.—p. 53.
*Method developed for grading a dehydrated food. R. V. Wilson and H. M. Slosberg.—p. 56.
*Cooling storage rooms by brine spray system. G. O. Weddell.—p. 59.
*Develops new market for an old product. S. A. McCarteney.—p. 63.
*New package for dehydrated food.—p. 72.
*Food branch of WPB revamped.—p. 73.
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Flour. A low moisture content and a low temperature aid in keeping flour in good condition.

Dehydrated Food. Canners should not hesitate to pro-

duce dehydrated food. Food that is dehydrated has a shorter merchandizable life than canned foods but it has a longer period of salability than many perishable foods. Distribution plans must be based on exact information about length of salable life.

Concentrated Soup. Heinz has developed a new concentrated soup to be diluted with an equal volume of water or milk before serving.

Compressed Flour. Since flour is estimated to be about 50% air, efforts are being made to compress it. The process is not perfected but solid flour comprising only two-thirds the original volume has been made.

Vitamin C. It has been found that the mere act of grating or chopping raw apples will cause astonishing losses of vitamin C. Different types of graters cause a variation in the losses, so that grater construction offers a good field for study.

Used Equipment. The WPB has a new division called the Surplus Used Equipment Section, which is merely an information center with vast files of information about surplus used equipment.

FRC. The Food Requirements Committee is having trouble in its task of getting next year's crop produced. FRC says that farmers must have either men or machines and that if the Army takes the men, machines are vital. The trouble is that the WPB has curtailed production of farm machinery and has refused to change the order.

Fruit Purées. Pectinized fruit purées have made possible the use of many fruits which will not make desirable ice creams of the standard kind. Purées are best with a total solids content 10% higher than that of the ice cream, half the sucrose replaced with enzyme-converted corn syrup, and a tartness obtained by the addition of citric acid. The purée recipes in the article have been successfully tested and some are on the market.

Demethylated Pectins. It is possible to make low-sugar jellies at a higher *p*H than usual without a greatly increased amount of pectin, if a low methoxyl pectin is used.

Grading Dehydrated Food. A technique for testing the flavor of dried eggs has been developed; 50 cc. distilled water is placed in each of six 2 x 4½″ wide-mouth bottles and 12 gm. whole egg powder is added to each. The bottles are then closed, placed on an automatic shaker and shaken 10 or 15 minutes. The egg mixture is then poached over a household poacher for 5 or 6 minutes and then cooled on numbered plates before the blind tasting of samples which are rated in flavor from 1 to 10.

Brine Spray System. The brine spray system, first used for citrus fruits and now used for apples, rapidly precools the fruit and then maintains the proper humidity and temperature for the remaining storage period. The precooling, which is the most important phase of storage because it retards oxidation, is immediately started by large volumes of chilly air from the spray system being forced in and out of the boxes.

Pinon Nuts. The first commercial marketing of pinon nuts was made possible 2 years ago when a sheller was developed by Karl Pitschner. To date, approximately half a million pounds have been used for roasted nuts and candy.

Dehydrated Food Package. The Army has developed a new package for dehydrated foods which is moistureproof, offers protection against insects, and can be submerged in salt water for several hours without damage to the contents.

WPB. Changes have been made in the personnel of the food branch of the WPB so that more efficient service can be given. A deputy chief and two assistant chiefs have been appointed; two new sections have been added and two old sections have been reorganized.

Shrimp Cans. To save tin, shrimp canners are voluntarily using cans containing 20 to 30% more shrimp.

Meat Shortage. Our nation faces a meat shortage of 3 billion pounds. Rationing or meatless days or a combination of the two seems to be the only solution to the problem.

AMS Grade Standards. AMS grades of dried apricots, dried peaches, dried prunes and, tentatively, processed raisins were amended effective August 1, 1942.

WPB Orders. The latest orders from WPB are given in this section. The tea and coffee news is that an increase in quotas, effective since August, fixes monthly quotas of 75% for coffee and 50% for tea based on average monthly deliveries during corresponding quarters of 1941.

Dried Pear Standards. Tentative U. S. standards for grades of dried pears have been developed by the AMS and became effective August 1, 1942.

Indicators. The indicator page gives a comparison of present or expected production of food as compared to the figure for last year. For example, the sugar beet crop this year is expected to exceed the 1942 output by 26%.

Carotene. Vitamin A potency is closely related to the carotene content in green vegetables, but in yellow and orange vegetables the relationship is more remote. A tentative ascending scale of probable vitamin A value is in this order: cabbage, peas, endive, Brussels sprouts, apricots, tomatoes, lettuce, pumpkin, carrots, broccoli leaf, watercress and spinach.

Evaporated Milk. Evaporated whole or skim milk has its heat stability increased from 2 to 6 times that of milk forewarmed at 203°F. when it is heated in 4 seconds to between 214°F. and 329°F., held 25 seconds and cooled in 4 seconds. Skim milk is more stable than whole with the preheating temperature depending somewhat on the milk.

Cold Mold Test. Testing cream quality at cream gathering stations by odor, flavor and acidity is more satisfactory than testing by Parson's visual mold test.

Bacteria in Butter. Butter spoilage due to bacteria occurs frequently in spite of protective factors which should limit bacterial growth.

Butter Flavor. Diactyl and acetylmethylcarbinol are largely responsible for butter flavor and aroma. Salting decreases the amount of these substances in the serum.

Fruit Juice Concentrates. Apple and pear juices, when enzyme-treated to complete optical clarity, can be evaporated to one-eighth or one-ninth of the initial volume. Mobile liquid concentrates, one-sixth of the original volume, are obtained from cider, cherry juice, berry juices and white or red low-acid grapes if the juice has been clarified by the enzyme method.

Grape Juice Storage. Grape juice can be stored without fermentation when it is placed in closed steel cylinders with CO_2 under pressure generated in the juice itself.

High Melting Chocolate. Chocolate with the high melting range of 100–149°F. may be obtained by hydrogenation. This high-melting chocolate can be mixed with untreated chocolate to obtain any desired softening point.

Salt in Hams. Salt and water distribution in hams is best determined by cutting cross sectional slices in a predetermined position and then selecting for analysis each muscle segment as it appears in the cross section.

Bacon Rancidity. The peroxide oxygen test and the Kreis test are the most suitable for judging the rancidity of fat in bacon which is due primarily to a characteristic of the particular fat involved.

Maple Syrup. The process of evaporating maple syrup causes the Ca and Mn salts to reach the limit of their solubility and to form precipitates.

Jonathon Apples. Jonathon apples kept at a storage temperature of 35 to 36°F. and a 3 to 4% CO_2 content derived from the fruit itself have a 2 to 3-month longer storage life and the fruit itself is better in flavor and quality than air-stored apples.

Levulose. The levulose from chicory, dahlia and Jerusalem artichoke plants can be utilized successfully.

VICTORY

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*Purchase of dehydrated meats marks beginning of program.—p. 2.
*Agreement with Brazil assures U. S. needed vegetable oils.—p. 2.
*Kentucky, Tennessee to get sugar from western processors.—p. 19.
*Codfish ceiling prices adjusted.—p. 20.
*California canners' ceilings on sardines rolled back.—p. 20.
*Packer granted relief on salmon prices.—p. 20.
*Sugar pricing alternatives.—p. 22.
*Hospital rations exempt from price restrictions.—p. 22.

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*Food committee urges meat quotas at wholesale, preparation for rationing, immediate conservation by householders.—p. 1.
*Record meat production fails to satisfy demands of prosperous U. S. public after Army, Navy, allied needs are subtracted.—p. 16.
Food committee, subject only to WPB, has saved cargo space of 1000 ships and treated problems from tea to meat.—p. 17.

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*Green tea supply frozen; black tea not affected.—p. 25.

Dehydrated Meats. The Department of Agriculture announces that the purchase of 80,000 lb. dehydrated beef in July for military and Lend-Lease marks the beginning of a meat dehydration program designed to increase capacity to 60,000,000 lb. annually by the end of October.

Vegetable Oils. Purchase agreements have been concluded between Brazil and the United States ensuring vitally needed vegetable oils.

Sugar Supplies. OPA has authorized 8 western beet processors and one West Coast cane refiner to distribute sugar in Kentucky and Tennessee to supplement inadequate supply from Gulf refiners at the expense of Defense Supplies Corporation.

Codfish Ceiling Prices. OPA has allowed an upward adjustment in the salt codfish ceiling prices of the Gorton-Pew Fisheries Company, Ltd., Gloucester, Massachusetts.

Sardine Prices. OPA set a specific price ceiling on the entire California sardine canning industry which rolled back maximum prices of those canners who had abnormally high ceilings based on each individual canner's highest March 1942 prices.

Salmon Prices. Deming and Gould Company of South Bellingham, Washington, has been permitted to adjust its Alaska canned salmon prices for sales to government agencies in line with those prevailing for competitive sellers because the firm refrained from advancing prices during March 1942.

Sugar Pricing Alternatives. Price Administrator Henderson has established an alternative maximum price of 6½ cents a pound for refined sugar which may be used by retailers in preference to their March ceiling under which they have been operating. This adjustment will not raise the general level of sugar prices to consumers.

Hospital Rations. Sales of canned boned chicken and turkey to government agencies were exempted from price restrictions by OPA on August 26.

Meat Conservation. The Food Requirements Committee, designed to assure adequate meat supplies for military and Lend-Lease use and to help bring about equitable distribution of the meat supply available for civilian consumption made 3 recommendations: to put into effect a conservation order establishing quotas for sales of meats by packers; to put into effect consumer rationing; and in the meantime, to conserve the "red meats" by substituting cheese, fish, poultry, and beans.

Meat Supply. A study of the meat situation by the Food Requirements Committee revealed that the total supply is the largest on record, and that the total demand is, also, the largest on record, and that the demand adds up to more than the total supply. To overcome the problem of feeding meat to our fighting men and the problem of equitable distribution, the committee suggests that civilians be asked to conserve meat until rationing can be put into effect.

Tea Supply. The OPA has issued an order freezing for government purchase all green tea held by importers, packers, wholesalers and jobbers not already packaged in ¼ lb. or smaller quantities. Packers are permitted to change methods of distribution from "direct-sale" to "sale-through-wholesalers" basis. Black tea is not affected.

EXTENT OF ARMY FOOD PURCHASING

Col. Crosby N. Elliott, officer in charge of procurement, U. S. Army, stated that four years ago the procurement division had 39 employees and was buying supplies of a value of about $4,000,000 annually. Today the department has 900 employees and its purchases are at a rate exceeding $3,000,000 a day. The Chicago Quartermaster Depot's own warehouse, 1,750,000 square feet of space, stocks 50,000 to 60,000 separate items, but this is only a small portion of the total, for manufacturers in most instances route products direct.

Lieut. Col. Jesse H. White, of the meat and dairy section, said that for every million men in service, the government spends from $500,000 to $550,000 per day for foods, and that about half of this sum goes for meat. He declared that in the Civil War beef was driven into the camps and slaughtered there; in World War I beef was delivered to the Army in quarters; today the Army gets boneless beef, lamb and pork, packed and frozen; also, for special purposes, dehydrated beef. A spread for bread has been developed, much like butter, which will not melt and run at temperatures under 120°.—*From an account of a meeting of Army officers and business men, Chicago, in Food Field Reporter, September 28, 1942.*

News Notes

Twenty-fifth Annual Meeting of the American Dietetic Association, Detroit. More than 1100 persons attended this meeting to participate in and listen to the discussions which covered the present scope of interests of the dietitian. In addition, more than 50 commercial exhibits and numerous graphic educational displays were presented, all of which served to enlighten the visitors in matters concerned with food shortages, rationing, education of the public, and so on.

Papers and reports presented at the meeting, which began to appear in the September JOURNAL, others subsequently and in this issue, covered a wide range of topics, from the relation of psychosomatic medicine to dietetics; civilian morale; developments in dehydration; recent research; the activities of the dietitian and nutritionist in public health, industrial, school, hospital, and other large group feeding; the place of the dietitian in the Army; the accelerated training program for dietitians; food rationing; food packaging; and food cost control; to the very practical problems of streamlined sandwich-making, and a remarkably inspiring and efficient demonstration of dehydrated foods presented by Marye Dahnke with the assistance of Mary I. Barber.

Readers of this JOURNAL may look forward to a report of every paper and discussion of direct interest in the coming issues as space permits.

At the close of the annual dinner on Wednesday the incoming elected and appointed officers were introduced to the audience; namely, Frances MacKinnon, President; Nell Clausen, President-elect; Bessie Brooks West, Secretary; Dr. Lillian B. Storms, Chairman of the Nominating Committee; and the incoming section chairmen. The names and addresses of the latter and of all committee chairmen appointed to date appear on the officers' page of this JOURNAL.

While the conditions of war precluded the many social events which ordinarily enliven the annual sessions of the Association, those which were held were notable for their excellent arrangement and the unusual and delicious menus planned by Jane Porter of the Women's City Club. An interesting sidelight in this respect is the report that the consumption of whole wheat bread and rolls, ordinarily 15 per cent of the total amount used in the Hotel Statler, increased to 50 per cent during the convention period.

On Sunday evening the Detroit dietitians entertained the members of the Executive Board at dinner at the Detroit Golf Club.

Mary M. Harrington presided at the Anniversary Luncheon October 19. Dr. Bruce Douglas, commissioner of health, extended greetings from the City of Detroit, and Margaret O'Connell, president of the Detroit Dietetic Association, and Jean Hawks Hewetson, president of the Michigan Dietetic Association, also welcomed the guests. Malcolm Bingay, columnist for the Detroit *Free Press*, spoke on the subject of making democracy work in this country. Further mention of his talk will be found under the editorial section. The concluding address by Dr. Margaret Mead, Food Habits Committee, National Research Council, on "Food Habits and Dietary Patterns," will appear as a leading article in the January JOURNAL.

The Allies Dinner, Wednesday night, was acclaimed one of the best in the history of the Association. The menu consisted of national foods of the United Nations, and the flowers and decorations were in red, white, and blue. The guest speaker was Allen Raymond, news commentator, who told of his recent experiences in the war zones in a talk entitled "40,000 Miles Around the War." Nelda Ross presided at the dinner and presented four charter members, eight of the seventeen past presidents, the members of the Executive Board, and others at the speakers' table, including Lenna Cooper in her World War I dietitian's uniform, complete with fedora, to the guests, after which Miss Ross proffered the president's gavel to Frances MacKinnon.

Among the interesting and outstanding guests at the convention other than those mentioned elsewhere were: Helen Burns, Superintendent of Dietitians, U. S. Army; Anna Spears, nutritionist, Food Administration, Ottawa, Canada; Isobel Gibson, mess officer, R.C.A.F.; Lieut. Marian Woolworth, member of the Waacs; and Lieut. Edna L. Cox, also of the Waacs.

Through arrangements made by Donna Ensign, 28 members of the Association visited the food service department of the new Ford bomber plant at Willow Run on October 23. Marian Moore, dietitian in charge of the cafeteria and the three private dining rooms, acted as hostess to the group, who were guests of the plant for lunch. At the present time the cafeteria and dining rooms serve about 3300 meals daily, including about 1600 meals to enlisted men and officers stationed at the barracks nearby. The cafeteria seats 250 and is open only to the clerical staff, engineers, and the Army personnel. The dining rooms are used by the executives. Workers in the plant are served only from food wagons which are owned and controlled by a private concession. Miss Moore is the only dietitian on duty at the plant at present.

Proceedings of the Annual Meeting, American Dietetic Association, Detroit. The proceedings of this meeting, formerly included in the December issue of this JOURNAL, are to be printed separately this year and distributed to members, and to others at a nominal cost, through the Business Office of the Association, 185 N. Wabash Avenue, Chicago.

Bulletin to State Presidents and Presidents of Local Associations. The Executive Board of the American Dietetic Association announces that, beginning in January, a bulletin will be distributed to the presidents of state and local associations which will be designed to keep them better informed as to the plans, problems and policies of the profession as a whole as these are proposed, considered, or approved, by the members of the Executive Board. It is believed, too, that a better coordinated group action will be thus stimulated and a closer tie-up between the policies of state and local associations and the national Association will be afforded. Members of the Executive Board will contribute to the content of the bulletin, which will be edited by Nell Clausen, President-elect.

Accelerated Training Program Proposed for Dietitians. Due to the urgent need of qualified dietitians in Army and civilian hospitals and other institutions as well as in industrial feeding programs, the Executive Board of the American Dietetic Association in session at Detroit has discussed thoroughly and seriously the means of meeting this increased demand, and at the same time maintaining the professional training standards at a satisfactory level. The Office of the Surgeon General of the Army is offering to provide in certain of its hospitals an apprenticeship period of six months for students who have satisfactorily completed part of their training in approved hospital training courses. It was previously suggested that six months be spent in such approved courses and six months in an Army hospital, at the end of which time the certificate of the training hospital would be granted. In this proposal of the Army is the provision of payment to the student apprentice at the rate of $1,440 a year for the first six months' experience under special supervision.

The intent of the following recommendation of the Executive Board is to provide the equivalent of the usual one-year apprenticeship, and at the same time to accelerate the training of dietitians for the duration in order to increase by 25 per cent the number of dietitians for both civilian and Army needs. The Board desires that the qualifications of the students to be trained under the proposed emergency program meet with the approval of the directors of training courses to the end that they may be deemed worthy of being awarded the customary certificate granted by the directors. The recommendation of the Board is as follows: "That students be released at the discretion of the approved course director at the end of nine months' training so that they may enter (1) the special Army training course as apprentices; or (2) civilian institutions (whose standards are comparable to those of the training institutions) as assistants under further supervision." A certificate will be granted by the approved course director after three months of successful experience in the second institution in which the student is placed. Training course directors are being asked to write to Gladys E. Hall, Educational Director, American Dietetic Association, stating whether they are willing to cooperate in this plan for the duration with their present students, whether they need students now, and if so, how many, and to list the dates throughout the year on which they will be prepared to receive students and the number of such students they are prepared to accept on each of these dates.

Dietitians in Army and Navy Service. Graduates of the Seattle Course for Hospital Dietitians now in Army service include the following: Maxine Armstrong, Fort Lewis, Washington; Bonnie Beilfuss, Fort Sill, Oklahoma; Douris Black, Spokane; Mary Brakel, Camp White, Oregon; Edna L. Cox, Waacs, U. S. Army; Dorothy Jean Eicher, Fort Lewis, Washington; Eleanor Ferguson Fisher, California; Valdis Knudson, Letterman Hospital; Harriet Schnitger, California; Mila Tanner, Fort Swift, Texas; Sibel Taylor and Mary Wall, Fort Lewis, Washington; and Marian Whalen, Fort Sam Houston, Texas. Pauline Clayton, recently on the staff at University of Michigan Hospital, and Alice Knox were at Fort Lewis during October with a General Hospital unit, awaiting overseas transportation. The following dietitians are at Camp Carson, Colorado, with General Hospital #50: Hazel Osmundson, Jean Spooner, and Frances Cardozo.

Massachusetts reports the following enlistments: Gertrude McDonald, Vanderbilt Unit, Station Hospital, Camp Forrest, Tennessee; Lieut. Marian Woolworth of the Waacs, temporarily at Fort Riley, Kansas; Marjorie Reed, with the Waves, Indiana; Margaret Dunham, Indianapolis Hospital Unit; Beth Hayes, Massachusetts General Hospital Unit, Florida.

Katharine Brown, a former member of the Executive Board of the American Dietetic Association, and more recently dietitian of the Moore-White Clinic, Los Angeles; Antoinette Bracher; and Sally Stapleton, formerly assistant to Jane Porter, Women's City Club, Detroit, have enlisted for service in the Waves.

Members of American Dietetic Association Appointed Regional Representatives, Women's Unit of the Conservation Division, WPB. The following have received such appointments: Helen Robertson (Ohio, Kentucky, and West Virginia), headquarters at Cleveland; Jean McDougall (Illinois, Indiana, Iowa, and Wisconsin), headquarters at Chicago; Ruth Atwater (Missouri, Kansas, Nebraska, and Arkansas), headquarters at Kansas City; Mabel Flanley (Texas, Louisiana, and Oklahoma), headquarters at Dallas; and Essie Elliott (California, Arizona, and Nevada), headquarters at San Francisco. The above members are among those who have been meeting with officials of the Conservation Division in conferences to discuss ways and means of achieving fuller participation in the national salvage campaign by women in all parts of the country, according to *Victory*, official bulletin of the Office of War Information.

Massachusetts Industrial Feeding Program. A report of the Subcommittee on Industrial Health concerned with Nutrition in Industry, Massachusetts Committee on Public Safety, dated October 17 and prepared by Quindara Oliver Dodge, states that 25,000 copies of the *Manual of Industrial Health*, mentioned previously in this JOURNAL, have been distributed; that the monthly publication, *Industry*, with a circulation of 3000, is running a series of 12 articles on industrial health; that the subcommittee had endorsed the October 6 meeting of the Massachusetts Dietetic Association; and that members of 12 professional, executive, and labor associations and groups had been invited to attend meetings of medical, public health, home economics and other groups, including a wartime conference of the Associated Industries of Massachusetts, October 29, and a Postgraduate Assembly on Industrial Health of the Massachusetts Medical Society, November 4.

Nutrition Refresher Course, Marion County, Indiana. A second refresher course was given in Indianapolis, Marion County, Indiana, September 25–26, and attended by about two hundred persons. Mary I. Barber, Food Consultant to the Secretary of War, spoke at the opening dinner and stressed ways and means of conserving food through reduction of waste and the conservation of fats. Miss Barber also spoke at the first session, which was open to the public and attended by over four hundred persons, on the subject of "Feeding Civilians and the Army." At the morning session, September 26, Louise Braxton presiding, Dr. John Ferree, director of the State Board of Health, extended greetings; H. E. Abbott, county agricultural agent, presented a paper on the general food situation, summarized elsewhere in the news section of this JOURNAL; Amy I. Bloye, Purdue University, spoke on "What's New in Nutrition"; and Adeline Wood, coordinator of war activities, American Dietetic Association, on canteen service. In the afternoon session, Mrs. Aneta Vogler, nutritionist, Indianapolis Red Cross, presiding, Dr. Hugh Martin, pharmacologist, Pitman-Moore Company, read a paper on the vitamins; Carl Reis, Acme Evans Company, spoke on enriched flour; and Dr. Matthew Winters, pediatrician, Indiana University School of Medicine, on "Nutrition from a Doctor's Viewpoint." The course was sponsored by the Indianapolis Public Schools, the State Board of Health, Office of Civilian Defense, Dairy Council of Indianapolis, Indiana Medical Center, and Purdue Extension Service.

Nutrition Exhibit. Prepared by the Nutrition Work Shop, of which Mrs. Frances Livingston Hoag is chairman,

an exhibit entitled, "Pack A Lunch With A Punch For Uncle Sam," was shown at the Logan Square Library, Philadelphia, prior to October 1, when it started on a journey through all the Philadelphia libraries, a total of 36. In addition to the exhibit, the Work Shop is completing a program which will include preparing radio scripts, leaflets, and further displays. The states of New Jersey and Delaware plan to participate in this community nutrition program.

Canteen Course, Atlanta. A folder of mimeographed material for use in the canteen course sponsored by the Atlanta (Georgia) Gas Light Company contains instructions for use and care of the food carriers designed and built by the above-mentioned company, and described in the September issue of *Practical Home Economics*. Included are a "check list for the sanitary and safe operation of a canteen"; tables of weights and measures, equivalent weights and measures, number of servings in #10 cans of various foods, and quantities required for 50 servings; instructions for preparing beverages; and five menus for emergency meals. The separate duties for four canteen workers are listed after each menu, arranged in chronological order and in such a way that all four work continuously throughout the preparation, serving, and cleaning up of the meal.

Special One-Year Dietetic Course. The need for dietitians is far beyond the supply. New calls are coming from industrial and government cafeterias, base hospitals, school cafeterias, and emergency food centers. As announced in this JOURNAL for November, to meet this demand Drexel Institute of Technology, 32nd and Chestnut Streets, Philadelphia, has organized a one-year course in dietetics for college graduates who have had inorganic chemistry and physiology as a part of their undergraduate college work. This one-year course, which includes the minimum essentials required by the American Dietetic Association for admission to the approved student courses in hospitals, consists of the following: Organic Chemistry, 6 credits, Food Chemistry 4, Biological Chemistry 4, Bacteriology 5, Social Sciences (Psychology, Sociology and Economics) 14, Education (Methods of Teaching, Educational Psychology) 4½, Food Preparation 18, Nutrition and Dietetics 9, and Institutional Management 15. Tuition is $290 for the year. Registration began on September 23 and classes on September 28.

Committee on Nutrition, Medical Society of Pennsylvania. At the second annual session of this committee, of which Dr. Herbert T. Kelly is chairman, the following subjects, among others, were discussed by various physicians: "Nutrition in Eye Dysfunctions"; "The Oral Manifestations of Deficiency Disease"; "The Management of Nutritional Deficiency in the Office"; "Relationship of Nutritional Deficiency to Cardiology"; "Relationship Between Endocrinology and Nutrition"; "The Newer Knowledge of the Vitamin B Group"; "Role of Mastication in Nutritional Deficiency"; "An Evaluation of Vitamin Therapy in Neurologic and Psychiatric Conditions"; "Nutrition and Diet During Prenatal Period"; and "Making Therapeutic Diets Adequate." Two nutritionists participated: Mrs. Anna dePlanter Bowes, chief, Division of Nutrition, Commonwealth of Pennsylvania, Department of Health, who discussed "Interpreting New Data on Food Values to Patients," and Mrs. Pauline Beery Mack, director, Ellen H. Richards Institute, Pennsylvania State College, who spoke on "Application of Research Methods for Determining Nutritional Status in Clinical Practice." Motion pictures on the following subjects were shown: "Thiamin Chloride Deficiency"; "Riboflavin Deficiency"; "The Modern Science of Nutrition and Nutritional Deficiency"; and "Nicotinic Acid Deficiency."

Minute Women at War Week was the title of a portfolio of suggestions by the Women's Section Field Division, War Savings Staff, Washington, D. C., for mobilizing America's women behind the war bond program, through women's organizations and their leaders, during the week of November 22–28. Some of the activities suggested were: torch light parades, fashion shows, war bond teas, speakers, window displays, radio broadcasts, etc. It was also suggested that cooperation of retailers be enlisted for store displays, booths and contests, and that local authorities, theaters and school officials be asked to contribute toward the success of the drive. Directions for carrying on the suggested activities were included. The booklet is a U. S. Government Printing Office publication.

The General Food Situation. Information which supplements that given previously in this JOURNAL regarding efforts to meet the food needs during the war emergency, was given by H. E. Abbott, Marion County (Indiana) agricultural agent, at a nutrition refresher course for that county in Indianapolis, September 26. Mr. Abbott stated that much larger supplies of food materials have been produced by American farmers during the current year than were anticipated when plans were made for this year's activities. For example, beef production is doubling the amount established in the goals set up at the beginning of the year and even greater increases have been made in the production of pork and lard. Production of evaporated milk has practically doubled the 20 per cent established goal, and large percentage increases were made in American cheese production (45 per cent) and dry skim milk for human consumption (62 per cent). For the first 8 months of this year the production of eggs was 16 per cent higher than during the same period for last year, and the indications are that farmers will sell about 17 per cent more chickens for meat this year than during 1941, especially since Secretary of Agriculture Wickard, under date of September 16, issued a call for the production of 200 million extra chicks during the fall and winter. Unprecedented crop yields per acre of cereal products are expected this year; total wheat production is up nearly 4 per cent; corn, 13 per cent; oats, 15 per cent (the largest crop since 1928); barley, 17 per cent; and buckwheat, 8 per cent. Prospective production of soy beans is the largest on record, being almost twice the production for 1941, and almost three times that for 1940. The peanut crop is larger than that of last year by 39 per cent in the Virginia-Carolinas area, by 81 per cent in the southeastern area, and 287 per cent in the southwestern area. A record sugar beet crop is expected this year, and production of sugarcane is expected to be slightly larger than the previous record crop of 1938. For the year as a whole, the production of several vegetables, including asparagus, cabbage, carrots, celery, lettuce, spinach and tomatoes is expected to be higher than in past years and the total tonnage grown for market will probably be 5 per cent above the 1940 peak. The production of vegetables for canning and processing has also been very heavy and new records will be set for tomatoes, green peas, sweet corn, snap beans, and Limas.

Abstracts of Food and Nutrition Research. The establishment of a new (seventh) section, "Specially Assembled Abstracts of Food and Nutrition Research", is to be initiated in *Biological Abstracts* in January 1943. This section will consist of an assembly and reprinting of all the abstracts contained in this publication that deal with human and animal nutrition and metabolism, vitamins, diet and diet-deficiency diseases, food composition and values, food processing and food microbiology, beverages, storage and conservation of foods, food spoilage and, in short, all of the biological literature that pertains to foods and nutrition. In previous volumes the abstracts pertaining to foods and nutrition have been dispersed throughout the entire volume.

The segregation of the foods and nutrition abstracts into this new, independently published section will provide, for the convenience of research workers and biologists generally, an abstracting service at greatly reduced cost. Every effort is being made to ensure completeness in coverage of the world's literature. Each volume will consist of ten abstract issues and an index to the complete edition of *Biological Abstracts*. The subscription price will be $6 per year (plus 50 cents for postage outside the United States). Inquiries should be addressed to *Biological Abstracts*, University of Pennsylvania, Philadelphia.

Ina Lindman Appointed Food Consultant to United States Navy. A well-known member of the American Dietetic Association and for several years director of the Home Economics Department, Fruit Dispatch Company, Miss Lindman has been loaned to the government, and assumed her responsibilities in Washington, November 23.

Katharine Mitchell Johnson Appointed Executive Director. Frances MacKinnon, President of the American Dietetic Association, has announced the appointment of Mrs. Johnson as Executive Director of the Association, effective December 1. In 1926–28, Mrs. Johnson, then Miss Mitchell, was chairman of what was then termed the Section on Education of the American Dietetic Association. Subsequently, 1932–33, she was Vice-president and later, 1935–36, President.

Louisiana Dietetic Association. The following officers have been elected: president, Mary Lois Gill, Touro Infirmary, New Orleans; vice-president, Mildred Rewerts, Charity Hospital, New Orleans; secretary-treasurer, Elizabeth H. Harris. Section chairmen are Chloe Robinson, Mary Rooney, and Drusilla Beans.

In addition to their regular duties, members of the association have been assisting in the teaching programs of the Red Cross and American Women's Volunteer Services concerned with nutrition and canteen courses. A recent project sponsored by the association was the installation of a nutrition booth at Holmes Department Store, which has been serviced by dietitians and volunteer workers.

Marguerite Griffin, formerly at Charity Hospital, was married in August to Lieut. E. B. Lokey, Jr., and will reside in Albany, Oregon.

The following appointments have been announced: Loraine Root, formerly at Charity Hospital, now at Fitzsimmons General Hospital, Denver; Marjorie McGahey, formerly at Charity Hospital, now at Swedish Hospital, Seattle; Margaret Grieshaber, formerly at Newcomb College, now in business in Chicago; Lola Schmidt, formerly at Blackstone College, Blackstone, Virginia, now replacing Miss Grieshaber; Louise Horn, formerly student dietitian at University Hospital, Ann Arbor, now at Touro Infirmary; Martha Greenman, formerly at Baptist Hospital, Memphis, now at Touro Infirmary; Mabel Bersuder, now at Charity Hospital. Isabelle Humphreys and Betty Jane Meister have resigned their positions at Charity Hospital.

Maryland Dietetic Association. The following officers have been elected for the coming year: president, Alice Jané; president-elect, Eleanor Wilkinson; vice-president, Hilda McEwen; secretary, Frances Gibson; treasurer, Elizabeth Hedgecock; member of the House of Delegates, Helen Baughman.

Elizabeth Saunders was chairman of the committee which arranged the first meeting of the 1942-43 season, held at State Teachers College, Towson, September 14.

The following members of the association have left for overseas duty in the Army: Kathleen M. Lewis, dietitian at Johns Hopkins Hospital since 1923 and director of dietetics since 1939, and Ethel Olney, dietitian at Gilman Country School, now serving with the Johns Hopkins Unit, General Hospital #18; Grace Levis, dietitian at Roland Park Junior High School, and Hermien Myers, Johns Hopkins Hospital, now with Johns Hopkins Unit, General Hospital #18; and Eames Harrison, attached to the University of Maryland Unit, General Hospital #142.

Recent marriages include that of Dorothy Gibson to Dr. Mordant Peck; Elizabeth Jenkins to Dr. George Corner; and Felissa Jenkins to Mr. Charles O. Bracken.

News of the following appointments has been received: Jane Strickland, formerly at Children's Hospital School, Baltimore, now at John Gaston Hospital, Memphis, Tennessee; Jane McKee replacing Miss Strickland; Engla Anderson, formerly at Johns Hopkins Hospital, now at the MacLean Psychiatric Hospital, Belmont, Massachusetts.

New students at Johns Hopkins Hospital include the following: Helen Abrams, Drexel Institute of Technology; Rebecca Dashiell, University of Maryland; Margaret Diener, Pennsylvania State College; Margaret Fuller and Adele Knerr, Oregon State College; Harriet Ginsburg, University of Oklahoma; Ruth Haglund, Iowa State College; Evelyn Langenwalter, University of Idaho; Mary Lawson, University of Alberta; Clara Tompsett, Michigan State College; Ruth Cottrell, Simmons College; Ruth Hwang, University of Illinois; Nancy Engebretsen, University of Wisconsin; Rita Holmberg, Clarke College; Betty Kribbs, Muskingum College; Elizabeth Lohr, Carnegie Institute of Technology; Freda Mumaw, Kansas State College; Suzanne Webb, James Millikin University; Marion Wilkinson, Madison College; and Arlene Wolfgang, Ohio University.

Massachusetts Dietetic Association. The following officers have been elected for 1942-43: president, Opal Bowers; vice-president, Geneva Marble; recording secretary, Marjorie Cantoni; corresponding secretary, Louise Longworth; and treasurer, Edith Hoadley.

The October meeting, sponsored by the Subcommittee on Industrial Health of the Massachusetts Committee on Public Safety, had as its speaker, Mrs. Julia Kiene, manager, Department of Defense Nutrition and Home Economics, Westinghouse Electric and Manufacturing Company. Represented in the subcommittee were industrial medicine, industrial and public health nursing, health education, industry and labor. Invitations were issued to the State Department of Health, Restaurant Association, State Nutrition Committee, Red Cross, Extension Service, and home service departments of utility companies. Dr. Helen S. Mitchell, principal nutritionist, Office of Defense Health and Welfare Services, described the national program for nutrition education.

News has been received of the following appointments: Olga Madzik, formerly at New York Hospital, now research dietitian at Massachusetts Memorial Hospital; Virginia Woodruff, formerly with the American Can Company, now therapeutic dietitian at Massachusetts Memorial Hospital; Helen Lubeck, now at Beth Israel Hospital, Boston; Mrs. Julia Royball, formerly at the New England Hospital for Women and Children, now chief dietitian at Stanford University Hospital, San Francisco; Mrs. Olive Barr, now head dietitian at Baker Memorial Hospital and Phillips House, Boston.

Louise Longworth, head dietitian at Peter Bent Brigham Hospital, submitted an outline of a course in practical nutrition for restaurant managers and operators at the recent Chicago meeting of the National Restaurant Association.

New Jersey Dietetic Association. The tenth anniversary meeting was held November 19 at the New Jersey College for Women. The program included reports of officers and section chairmen, followed by a symposium on "A Decade of Professional Progress," consisting of the following speakers and subjects: Mary I. Barber, "In the Nation"; Winifred Cushing, "New Jersey Dietetic Association History

Highlights"; Geraldine Parry, "Hospital Service"; Lillian Park, "Hospital Teaching"; Helen Kilpatrick, "School Feeding"; Harriet Stowe, "School Nutrition Education"; Veronica McGuire Malleck, "Community Nutrition Education"; Sophia Morris, "Professional Training"; Asta Packard, "New Jersey's Nutrition Program." Continuing the program Helen W. Hazen discussed "Our Professional Job Ahead" and Margaret Trumbull Corwin presented "A Decade in a College History." As dinner speaker, Dr. Frank G. Boudreau, chairman, Food and Nutrition Board, National Research Council, spoke on "Nutrition and the War."

Greater New York Dietetic Association. A dinner meeting was held at the Therese Worthington Grant Restaurant, New York City, October 28, with the following program: "Greetings from the President," Pauline Murrah; and a discussion of the Detroit A. D. A. meeting, including "War Activities," by Lenna F. Cooper; "Next Year's Plans," Nelda Ross; and "Who Was There," Helen Hamilton.

Pittsburgh Dietetic Association. The first meeting of the 1942–43 season was held at Shadyside Hospital, October 5. Moving pictures of industrial operations were presented by the Dairy Council.

The following appointments have been announced: Betty Reiss, graduate student of Shadyside Hospital training course, now at the Homestead Hospital; Jeanne Daubert Abramovitz, now at Psychiatric Hospital, Pittsburgh; Gertrude Eddinger, now at the Watson Home for Crippled Children, Leetsdale, replacing Dorothy Nicholson, who was married in July; Mary Wand, St. Louis, now assistant dietitian at Magee Hospital; Mrs. Estelle Yamshon, now therapeutic dietitian at Magee Hospital; Martha Study, St. Louis, now therapeutic dietitian at Allegheny General Hospital.

Rena S. Eckman has resigned from Montefiore Hospital and is now in Palm Beach, California. Lucille Simpson, formerly of Columbia Hospital, Wilkinsburg, is now in Texas.

Beril Hineman, Allegheny General Hospital, was married to Mr. William Boerner, Winber, Pennsylvania, on October 3.

Mrs. Florence Glick Roth, formerly of Montefiore Hospital, and now living in Geneva, Ohio, has announced the birth of a son.

DIET OF FACTORY AND COLLIERY WORKERS IN WARTIME

In the *Medical Press and Circular*, March 1942, J. D. Kershaw writes that in a typical north industrial working-class town (England), unemployment has virtually disappeared and wages are high. Usually the full ration allowances are bought, but the bread-winner tends to get the lion's share. The meat intake is less than half that of peacetime and is replaced by bread and potatoes; bacon is replaced by porridge. The fat intake is much as it was, that of sugar and eggs much lower, and that of milk and green vegetables about the same (green vegetables were never popular in this district). There is a material increase in carbohydrate consumption. So far, no obvious effects of these changes are to be seen, and in a survey at present in progress only two possible deficiencies, a low-plasma protein content and a slight but definite indication of vitamin C deficiency, have been found. It is possible that the vitamin supplements to margarine have actually increased the intake of vitamins A and D. An extension of rationing, an increased supply of vegetable protein, and large-scale provision of natural or manufactured vitamin C, the compulsory introduction of a satisfactory wholemeal loaf, the education of the housewife and the extension of community feeding, are points suggested for immediate consideration.

Writing in the same publication, R. Brock states that the composition of the diet of one collier with an adequate income was estimated, in order to obtain some idea of wartime standards. The calorie value was about 4000 daily, and the chief deficiencies were in vitamins D (marked), B_1 (slight) and C (definite). The deficiencies could be met by a daily supplement of a pint of milk, a piece of cake, a vitamin C concentrate tablet and one halibut oil capsule. The suggestion that these might all be dispensed by the canteen is considered. There is not a strong case for canteens on an elaborate basis, for the worker is either too poor to use them or can obtain the same food values elsewhere. The position of the collier during periods when wages are lost through sickness, etc., is discussed. Widely varying rates of relief are afforded by National Health Insurance, Workmen's Compensation, Unemployment Insurance, and Assistance Boards. A broader, more unified scheme is needed; at present no machinery exists by which a sick collier can obtain all that may be necessary for his diet and rehabilitation.

Commenting in the August *Bulletin of Hygiene*, the abstractor of both articles, Mr. H. N. Green, has this to say concerning the second paper: "This article suffers from the all too frequent fault of an uncritical acceptance of what are often rather arbitrary standards for food requirements. One need hardly call attention to the fact that colliers' diets are here discussed on the basis of the diet of one individual."

Share-the-Meat Campaign

On December 1, the "Share-the-Meat" campaign, which has already been given some publicity through the press and radio, is being launched on a nation-wide basis through twenty government agencies distributing information through extension workers, publications both official and popular, schools, and the Red Cross. It will be explained to the public that OPA Restriction Order No. 1, which became effective October 1, limits deliveries of meat to civilian outlets in order to supply military and Lend-Lease needs and that restrictions apply only to beef, limited to 80 per cent of 1941 deliveries; veal, 100 per cent; lamb and mutton, 95 per cent; pork, 75 per cent. Variety meats made from heads, feet, tails, and glandular organs are not restricted; in fact, because of the larger number of animals which will go to market this year, a much greater quantity of these meats will be available for civilian consumption.

A campaign book of material for use by personnel in government agencies has been prepared and approved by the Foods Requirements Committee of the WPB, representing all the agencies of the Government having to do with the wartime management of the nation's food supply; and the U.S. Government Nutrition Committee, representing all agencies working in the field of health and nutrition. Among the "campaign appeals" are listed the points to be emphasized concerning the "why of sharing"—why it is patriotic to share, fair to share, and wise to share. Among the points listed under the "what of sharing" are: No one expects families who are now consuming below the sharing level to cut their consumption . . . . but in order to manage our wartime meat supply fairly, no one should consume more than 2½ lb. per week. . . . It is not a program for uniform meatless days in every home. . . . In World War I when meatless days were used, per capita meat consumption went up, not down. . . . The sharing allowance of restricted meats does not include dogs or cats. Anyone who insists on feeding the restricted cuts of beef, veal, lamb, mutton, or pork to pets should take it from his own allowance. . . . The sharing allowance includes only the retail cuts, sausage, and the canned meats made from pork, beef, veal, lamb, and mutton carcasses. It is calculated "bone in," and "fat on." The sharing allowance for children is: for each child under 6, ¾ lb. per week, for each child from 6 to 12, 1½ lb. per week. . . . The individual share includes all meat eaten whether at the family table, at another's as a guest, or at some public eating place.

The basic nutrition facts on which educational programs are to be based are stated as follows: (1) Meat is a good source of five important nutritive elements—protein, iron, thiamin, niacin, and riboflavin. (2) So far as protein goes, it is easy to supplement the restricted meats with alternate dishes. It simply means using more of the variety meats, poultry, milk, cheese (all kinds), eggs, fish, and legumes—dried peas and beans, lentils, soy beans and peanuts—in the family's meals. (3) It is nutritionally dangerous to think of meat solely as a protein food and choose alternate foods solely for protein content. As stated above, meat supplies other essential dietary values. Hence, if meat consumption is substantially reduced, it means increased emphasis on other foods in the diet besides the alternate protein foods. Very important in this respect are whole grain products (bread, flour, and cereals), enriched white bread and flour and restored cereal. All these products supply substantial quantities of thiamin, niacin, and iron. Dark green leafy vegetables, potatoes, peanuts, legumes—dried peas and beans, lentils, soy beans, should be stressed also as they contain the nutritive elements reduced by eliminating part of the meat from the diet. (4) From the standpoint of flavor the important thing to stress is spreading the taste of meat. Meat and meat juice can be mixed with other foods to make the flavor go farther. Use of meat in the form of stews, hash, meat loaf, soup, etc., gives meat flavor to meals without requiring the use of large amounts of meat. Statistics regarding the amounts of variety meats and meat substitutes available are given, as well as their place in the diet and methods of use.

Other source material includes marketing lists for families of different income levels in which not more than 2½ lb. of meat per person is called for. A week's menus for a family of five are also given. Housewives will be cautioned to "get all the good from meat" by storing safely, cooking meat so that meat losses are kept low, being thrifty with left-overs, learning how to use every kind of meat and every bit of meat carcass, and "spreading the flavor."

A printed release to block and neighborhood leaders will give instructions as to how the program is to be explained to housewives and provides a means of reporting the number of families interested in possible food demonstrations. These "leaders" will also be furnished with a printed pamphlet giving essential information as outlined above to be left with the housewives. A chart for deciding on the family's total meat allowance for the week will also be included in this pamphlet. Meat produced by the family and that eaten outside of the home are to be included in the weekly calculation.

All of the above is preliminary to a meat rationing system which the Foods Requirements Committee has decided unanimously must be worked out and put into operation early in 1943 as the fairest method of sharing the supply of meat.

The Food Front in Britain

"On the food front the price of the *second front* is the sacrifice of meat for potatoes, bread for potatoes, and shell eggs for dried eggs." Minister of Food, Lord Woolton, in reviewing the food position, forecasts many cuts in supplies of secondary commodities rather than in main rations. Main rations may have to be reviewed in the light of possible changes in the supply position. The food import program has already been cut substantially and the reduction can not be made up entirely by increased home production.

From October 18, children will no longer get four eggs a week instead of the ordinary consumer's one. Priority for invalids, nursing and expectant mothers will continue. They will get an average of three eggs a week through the winter. Holders of children's ration books will get two packets or tins of dried eggs. Apart from the packaged dried eggs for table use, the Ministry will put on the market shortly a new cooking quality of dried egg powder suitable for cakes and puddings.

A new ration period No. 3 has just commenced for points rationing and the changes are significant. While the point values of certain types of canned foods have been lowered, *e.g.* meat roll or galantine, Eire stewed steak and salmon grade 3, and broken biscuits, other lines such as Spam, Mor, salmon grade 1 have become scarce, indeed. In some districts it has been reported that consumers cannot secure foods for their points and it seems evident that more secondary goods will go on points, particularly soups for winter use, so that all points may be expended. [Vegetarians may turn in their meat and bacon ration coupons and get 12 oz. cheese a week instead, Lord Woolton revealed in a statement released in Montreal. Ed.]

Within a matter of weeks "National bread" will be fortified with calcium salts and "British medical research centers state that this will enable the people to stand the rigors of the winter better, particularly cold due to lack of fires." It will be remembered that Britain is desperately short of coal and while fuel rationing is not actually in force authorities are ensuring that no fires will be lit until November and after that only one fire in a house. Some interesting experiments have been made in the pooling of cooking, one family cooking for two others and also families sharing a coal fire, but there seems little doubt that the winter of 1942 promises to be a cheerless one.

A milk census is being taken by the Ministry of Food to ensure that milk will be distributed fairly during the winter and to check up priority consumers. The milk situation is no better than it was last winter and there is little chance of any improvement as long as imports of cattle feeding stuffs, particularly oil cakes, have to be cut down to a bare minimum. Substantial stocks of dried milk will prevent any actual hardship but there will be precious few milk puddings or milk drinks this winter. Children in schools will still be assured their milk drink in the mornings and supplementary allowances are to be maintained for expectant mothers and invalids.

The Ministry of Food has issued more than two dozen recipes for American dishes which can be used by British housewives who entertain American troops. In addition special demonstrations will be given at food centers throughout the country. Pumpkin pie seems a favorite recipe but the sparing use of sugar will make it taste a trifle less appetizing than the boys are accustomed to at home. However, the warmth of their welcome in the British home will compensate.—*News Release (Via Clipper—Censored—Delayed), Food Field Reporter, November 9, 1942.*

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The following abbreviations indicate in which section the material indexed appears: "ab," abstract under current literature; "cc," current comment; "ed," editorial; "f," filler; "n," nutrition and the war. A star (*) indicates an original article in this JOURNAL. Books reviewed appear in the subject index under the subhead "book reviews." Author index, which follows subject index, includes only the names of authors of original material appearing in this JOURNAL in full or abstracted in the editorial section or in fillers, and authors of books reviewed.

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BRIEF HISTORICAL NOTES ON MEAD'S CEREAL AND PABLUM

HAND in hand with pediatric progress, the introduction of Mead's Cereal in 1930 marked a new concept in the function of cereals in the child's dietary. For 150 years before that, since the days of "pap" and "panada," there had been no noteworthy improvement in the nutritive quality of cereals for infant feeding. Cereals were fed principally for their carbohydrate content.

The formula of Mead's Cereal was designed to supplement the baby's diet in minerals and vitamins, especially iron and B_1. How well it has succeeded in these functions may be seen from two examples:

(1) As little as one-sixth ounce of Mead's Cereal supplies over half of the iron and more than one-fifth of the vitamin B_1 minimum requirements of the 3-months-old bottle-fed baby. (2) One-half ounce of Mead's Cereal furnishes all of the iron and two-thirds of the vitamin B_1 minimum requirements of the 6-months-old breast-fed baby.

That the medical profession has recognized the importance of this contribution is indicated by the fact that cereal is now included in the baby's diet as early as the third or fourth month instead of at the sixth to twelfth month as was the custom only a decade or two ago.

In 1933 Mead Johnson & Company went a step further, improving the Mead's Cereal mixture by a special process of cooking, which rendered it easily tolerated by the infant and at the same time did away with the need for prolonged cereal cooking in the home. The result is Pablum, an original product which offers all of the nutritional qualities of Mead's Cereal, plus the convenience of thorough scientific cooking.

During the last ten years, these products have been used in a great deal of clinical investigation on various aspects of nutrition, which have been reported in the scientific literature.

Many physicians recognize the pioneer efforts on the part of Mead Johnson & Company by specifying Mead's Cereal and PABLUM.

Pablum is a palatable mixed cereal food, vitamin and mineral enriched, composed of wheatmeal (farina), oatmeal, cornmeal, wheat embryo, beef bone, brewers' yeast, alfalfa leaf, sodium chloride, and reduced iron.

WE ARE SORRY...

LAST month, on this page, we urged you to buy lamb because when we wrote the copy there was an abundant supply on hand, and it offered a way to relieve some of the pressure on beef and pork. But just as the copy reached your hands, Uncle Sam said: "Lamb, and lots of it, please, for the boys that are fighting for you and me" —so we had to tell a lot of you folks who ordered lamb that we had 'stuck our necks out' and, sorry to say, could not deliver as per advertisement.

But with us, it's "Uncle Sam First", as it also is with you. You know that if the meat you want is available, you can count on getting it when you want it—from Pfaelzer Brothers.

RIGHT NOW is a good time to start thinking about your Holiday poultry supplies, and the early shipments being received are above the average in quality. Supplies now seem to be adequate, but after what happened last month, we're just going to hedge a bit and say that if you want good chickens, turkeys, ducks and geese, we've got them NOW, and if Uncle Sam doesn't say "Come hither" to our stock, we can ship this holiday business-building merchandise to you in sizes and quantities to fit your needs.

MEL-BRO TURKEYS

Instead of Beef

Poultry of all kinds is a quick crop and should be featured on menus every day, thereby lessening the demand for meats. Mel-Bro Turkeys are noted for their high percentage of yield and exceptional flavor. They come in weights to fit every requirement.

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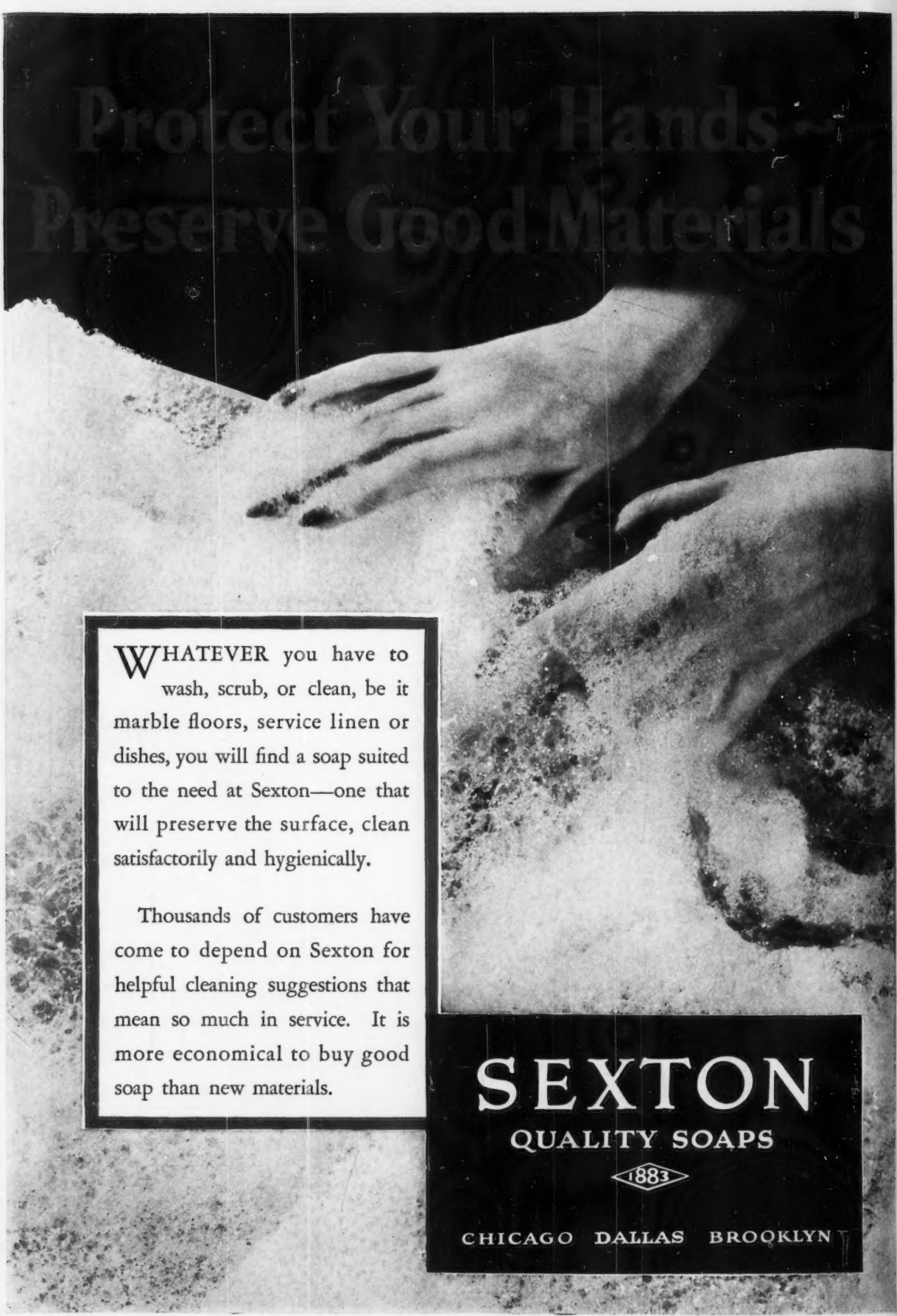
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